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**Continuation of the Compendium of  
APPLICATIONS TECHNOLOGY SATELLITE  
and  
COMMUNICATIONS TECHNOLOGY SATELLITE  
USER EXPERIMENTS  
1967-1977**

**VOLUME II — ABSTRACTS**

**Nicholas A. Engler  
John F. Nash  
Jerry D. Strange**

(NASA-CR-135416-Vol-2) CONTINUATION OF THE  
COMPENDIUM OF APPLICATIONS TECHNOLOGY  
SATELLITE AND COMMUNICATIONS TECHNOLOGY  
SATELLITE USER EXPERIMENTS 1967-1977, VOLUME  
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**UNIVERSITY OF DAYTON  
RESEARCH INSTITUTE  
DAYTON, OHIO 45469**

**May 1978  
FINAL REPORT**

**PREPARED FOR:  
NASA-LEWIS RESEARCH CENTER  
CLEVELAND, OHIO 44135**

**NAS3-20392**



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APPLICATIONS TECHNOLOGY SATELLITE  
AND  
COMMUNICATIONS TECHNOLOGY SATELLITE  
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16. Abstract <p>ATS-1, the first Applications Technology Satellite, was launched by the National Aeronautics and Space Administration in 1966. Since then ATS-3,5, and 6, and the Communication Technology Satellite (CTS) have been successfully used for a large number of communications experiments and demonstrations. This report summarizes the important user experiments conducted during the twelve year period. The experiments are grouped by type of service offered; for example, education, health services, and data transmission. Particular emphasis is given to summarizing and evaluating user attitudes toward the ATS program. Users were interviewed both in-person and by questionnaire. This report is a continuation of a previous NASA Contractor's Report performed under Contract NAS3-19699.</p> <p>As part of the work on this and the previous contract, a large number of reports, papers and articles were obtained and catalogued into an information retrieval system. These are listed in Volume II. Also included in Volume II are the questionnaires received from the various users.</p>					
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APPENDIX E  
SELECTED ABSTRACTS

This appendix lists the abstracts of documents that we have received in the past 2.5 years. This abstract listing is not as extensive as the bibliography given in Appendix A because not all documents in Appendix A warrant an abstract. Such documents as proposals, book reviews, newspaper articles, etc., will not appear in this appendix.

DATE OF DOCUMENT/TYPE: MAR 72

/ BIBLIOGRAPHY

TITLE OF DOCUMENT: APPLICATIONS TECHNOLOGY SATELLITES: A CONTINUING BIBLIOGRAPHY WITH INDEXES

AUTHOR: GODDARD SPACE FLIGHT CENTER

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER, GREENBELT, MD

SATELLITE: ATS-1, ATS-3, ATS-5

OBJECT OF EXPERIMENT: TO MAKE AVAILABLE TO THE PUBLIC (CORPORATIONS, UNIVERSITIES, AND GOVERNMENT ORGANIZATIONS) THE CAPABILITIES OF NASA'S ATS SATELLITES FOR WORTHWHILE EXPERIMENTATION FOLLOWING COMPLETION OF NASA'S PRIMARY EXPERIMENTATION.

ABSTRACT:

A LARGE NUMBER OF DOCUMENTS HAVE BEEN PREPARED BY THE SCIENTIFIC AND TECHNOLOGICAL COMMUNITY ASSOCIATED WITH THE ATS-1 THROUGH 5 PROGRAM AND IT HAS LONG BEEN RECOGNIZED THAT A BIBLIOGRAPHY OF THESE DOCUMENTS WOULD BE NECESSARY. THIS IS THE INITIAL RELEASE OF THAT BIBLIOGRAPHY.

THE BIBLIOGRAPHY IS A LISTING OF ATS DOCUMENTATION PUBLISHED SINCE 1965. THE USEFULNESS OF THIS DOCUMENT IS READILY APPARENT AS A TOOL FOR THE ENGINEER OR SCIENTIST WHO IS SEEKING INFORMATION ON THE ATS PROGRAM. IT SHOULD HELP TO SAVE VALUABLE RESEARCH TIME AND TO ELIMINATE COSTLY REDUNDANT EFFORTS.

DURING THE NEXT TWELVE MONTHS, THE BIBLIOGRAPHY WILL BE UPDATED TO ITS FINAL FORM. USER'S COMMENTS ON CORRECTIONS AND OMISSIONS ARE REQUESTED

SUBJECT:

AIR TRAFFIC CONTROL  
BROADCASTING  
EDUCATIONAL APPLICATIONS  
MARITIME TRAFFIC CONTROL  
METEOROLOGY  
VOICE COMMUNICATIONS

AIRCRAFT COMMUNICATIONS  
DATA TRANSMISSION  
LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS  
NAVIGATION

KEYWORDS: BIBLIOGRAPHY; ATS-1; ATS-3; ATS-5

TECHNICAL REPORT NUMBER: X-460-72-87

UNIVERSITY OF DAYTON ACCESS NUMBER: 1

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ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPE: JUN 70 / TECHNICAL REPORT

TITLE OF DOCUMENT: L-BAND ATS-5--ORION--S.S. MANHATTAN MARINE NAVIGATION AND COMMUNICATION EXPERIMENT/FINAL REPORT

AUTHOR: HANAS, D J; ILLIKAINEN, K E; KRATZER, D L; SPAANS, E A

SPONSORING AGENCY: APPLIED INFORMATION INDUSTRIES, CAMBRIDGE, MASS

SATELLITE: ATS-5 COMMUNICATIONS: L-BAND EXPERIMENT PERIOD: 30 MAR 70 - 30 APR 70

OBJECT OF EXPERIMENT: TO CONDUCT NAVIGATION AND COMMUNICATION EXPERIMENTS IN OCEAN CRAFT VIA ATS-5 OVER WIDE VARIATIONS IN LATITUDE, LONGITUDE, ELEVATION ANGLE, AND WEATHER CONDITIONS

ABSTRACT: A UNIQUE EXPERIMENT IS DESCRIBED IN WHICH L-BAND SIGNALS RELAYED BY SYNCHRONOUS SATELLITE WERE SUCCESSFULLY USED FOR NAVIGATION AND DATA COMMUNICATION FOR THE FIRST TIME. RF SIGNALS CONTAINING RANGING MODULATION WERE TRANSMITTED FROM NASA'S STADAN STATION AT MOJAVE, CALIFORNIA, RELAYED THROUGH THE ATS-5 SYNCHRONOUS SATELLITE AND RECEIVED BY TWO STATIONS. ONE WAS STATIONARY, LOCATED AT THE APPLIED INFORMATION INDUSTRIES LABORATORY IN MOORESTOWN, NEW JERSEY, AND THE OTHER WAS MARINE MOBILE, INSTALLED ON THE HUMBLE OIL AND REFINING COMPANY'S ICEBREAKING TANKER, S.S. MANHATTAN. THIS EXPERIMENT DEMONSTRATED TO A PRECISION NEVER BEFORE ACHIEVED THE FEASIBILITY OF POSITION FIXING BY MAKING RANGE MEASUREMENTS BETWEEN A FIXED GROUND STATION, A SATELLITE IN A KNOWN POSITION AND A MOVING PLATFORM ON THE SURFACE OF THE EARTH. ALSO NOTABLE IN THIS EXPERIMENT WAS THE SIMULTANEOUS TRANSMISSION AND RECEPTION OF DATA COMMUNICATIONS ON THE RANGING SIGNAL.

CONCLUSION: L-BAND SIGNAL TRANSMISSION VIA A SYNCHRONOUS SATELLITE CAN PRODUCE PRECISE AND STABLE RANGE MEASUREMENTS. THE ATS-5 SYNCHRONOUS SATELLITE, ALTHOUGH PRESENTLY IN A SPINNING MODE, FULFILLS ALL ESSENTIAL REQUIREMENTS FOR FEASIBILITY EXPERIMENTATION TO PROVE CONCEPTS INVOLVED IN L-BAND POSITION FIXING EXPERIMENTS. THE RELATIVE SIMPLICITY OF THE EQUIPMENT INVOLVED IN THIS EXPERIMENT LEADS TO THE CONCLUSION THAT AN UNCOMPLICATED EQUIPMENT COMPLEMENT INVOLVING SIMPLE PROCEDURES IS POSSIBLE FOR WIDESPREAD MARINE USE IN THE FUTURE. THIS PASSIVE NAVIGATION SYSTEM WILL PROVIDE INSTANTANEOUS POSITION FIXING ACROSS BROAD AREAS OF THE GLOBE AT RELATIVELY LOW COST FOR EACH USER.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: L-BAND; NAVIGATION; COMMUNICATIONS; ORION; OCEANCRAFT; POSITION FIXING; ATS-5; RANGING; MARINE NAVIGATION

TECHNICAL REPORT NUMBER: NAS-12-2260 UNIVERSITY OF DAYTON ACCESS NUMBER: 2

DATE OF DOCUMENT/TYPE: 03 AUG 72 / PROPOSAL

TITLE OF DOCUMENT: TEST PLAN FOR A SATELLITE COMMUNICATIONS NETWORK TO SUPPORT LASL'S FALL ROCKET PROGRAM IN THE PACIFIC AREA (PICAPOSTE)

AUTHOR: GARCIA, M H

SPONSORING AGENCY: EG AND G, INC., ALBUQUERQUE, NM

SATELLITE: ATS-1

EXPERIMENT PERIOD: 25 SEP 72 - 20 OCT 72

OBJECT OF EXPERIMENT: THE OBJECTIVES OF THE EXPERIMENT INCLUDE: (1) GEOMAGNETIC FIELD LINE TRACING, (2) IONOSPHERIC MODIFICATION, (3) IRON ATOM OXIDATION REACTIONS RESULTING IN INFRARED EMISSION, (4) THERMAL CONDUCTIVITY AT ZERO G AND NEAR ZERO DEGREES TEMPERATURE, AND (5) IONOSPHERIC NOISE.

ABSTRACT:

THIS TEST PLAN PROVIDES FOR THE USE OF NASA'S APPLICATION TECHNOLOGY SATELLITE (ATS-1) TO FULFILL THE LOS ALAMOS SCIENTIFIC LABORATORY'S (LASL) COMMUNICATIONS REQUIREMENTS DURING OPERATION PICAPOSTE.

THE ATS-1 SATELLITE NETWORK IS INTENDED TO BE THE PRIMARY COMMUNICATIONS LINK FOR GROUND-TO-GROUND AND PRELAUNCH COORDINATION AND FOR PASSING VECTOR INFORMATION BETWEEN AIRBORNE INSTRUMENTATION STATIONS, GROUND STATIONS, AND LAUNCH SITES.

SUBJECT:

DATA TRANSMISSIONS VOICE COMMUNICATIONS

KEYWORDS:

ATS-1; PICAPOSTE; COMMUNICATIONS; IONOSPHERE; INFRARED EMISSION; THERMAL CONDUCTIVITY

UNIVERSITY OF DAYTON ACCESS NUMBER: 3

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DATE OF DOCUMENT/TYPE: JAN 73

/ CORRESPONDENCE  
REQUEST FOR USE OF ATS SATELLITE

TITLE OF DOCUMENT: APPLICATION FOR USE OF ATS-1 FOR COMMUNICATION AMONG SOVIET AND U.S. SHIPS AND AIRCRAFT IN STUDYING  
ATMOSPHERIC, SEA, AND ICE CONDITIONS IN THE BERING SEA AREA

AUTHOR: SMITH, W S

SATELLITE: ATS-1

COMMUNICATIONS: K TO X BAND

EXPERIMENT PERIOD: FEB 73 - MAR 73

OBJECT OF EXPERIMENT: TO MAKE MEASUREMENTS FROM US TO USSR AIRCRAFT OF MICROWAVE RADIATION EMITTED IN THE K TO X BAND  
D RANGE BY THE SEA SURFACE AT VARYING TEMPERATURES AND SEA STATE, BY THE SEA ICE, AND BY ZONES OF LIQUID  
PRECIPITATION:  
TO EXCHANGE AGREED-UPON MEASUREMENTS, TO ANALYZE THEM, AND TO JOINTLY COMPARE THE INTERPRETATIONS  
AND RESULTS OF THESE ANALYSES;  
TO ACQUIRE ADDITIONAL INFORMATION ON THE CAPABILITIES OF MICROWAVE RADIOMETERS MOUNTED ABOARD  
SATELLITES AND AIRCRAFT FOR OPERATIONAL USE IN METEOROLOGY AND FOR STUDYING THE NATURAL RESOURCES OF  
THE EARTH

ABSTRACT: THIS IS A REQUEST FOR ATS-1 COMMUNICATIONS LINK BETWEEN A U.S. COMMUNICATIONS BASE AT ANCHORAGE, ALASKA  
AND A SOVIET BASE AT CAPE SCHMIDT.

SUBJECT: METEOROLOGY OCEANOGRAPHY

KEYWORDS: AIRCRAFT; MICROWAVES; K-BAND; ATS-1; OCEANOGRAPHY; ICE; RADIOMETER; SALINITY; SHIPS; COMMUNICATIONS  
; RUSSIA

UNIVERSITY OF DAYTON ACCESS NUMBER: 4

DATE OF DOCUMENT/TYPE: APR 72 / PROPOSAL

TITLE OF DOCUMENT: ATS-1 COMPUTER COMMUNICATIONS EXPERIMENT

AUTHOR: KELLER, C H

SPONSORING AGENCY: AMES RESEARCH CENTER

SATELLITE: ATS-1

EXPERIMENT PERIOD: JAN 72 - JUN 74

OBJECT OF EXPERIMENT: TO STUDY THE EFFECT OF THE APPLICATION OF COMMUNICATIONS SATELLITES TO COMPUTER NETWORKING AND DIGITAL DATA LINKS

ABSTRACT: COMPUTING FACILITIES AT THE UNIVERSITY OF HAWAII (UH) AND THE UNIVERSITY OF ALASKA (UA) WILL BE CONNECTED TO THE ADVANCED RESEARCH PROJECTS AGENCY (ARPA) COMPUTER NET VIA AN ATS-1 VHF LINK TO THE NASA-AMES RESEARCH CENTER (ARC). THIS EXPERIMENT PROVIDES DETAILED INFORMATION CONCERNING THE CHARACTERISTICS OF THE SATELLITE LINK AND THE PERFORMANCE OF A UNIQUE COMMUNICATION SYSTEM UNDER ACTUAL OPERATING CONDITIONS. THE EXPERIMENT HAS THE POTENTIAL OF PROVIDING, ON A TEMPORARY BASIS, UH AND UA ACCESS TO THE ILLIAC 4 AND OTHER RESOURCES CONNECTED TO THE ARPA COMPUTER NETWORK, AS WELL AS PROVIDING ARPA ACCESS TO THE BCC-500 COMPUTER AT UH.

SUBJECT: DATA TRANSMISSION

KEYWORDS: COMMUNICATIONS; ATS-1; COMPUTERS; DATA TRANSMISSION; COMPUTER NETWORK; COMPUTER COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 5

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DATE OF DOCUMENT/TYPE: JAN 72 / PROPOSAL  
TITLE OF DOCUMENT: PROPOSAL FOR STUDYING CARRIER SHIFT TECHNIQUES AND INCREASING MAXIMUM DATA TRANSMISSION RATE THROUGH  
H ATS-3 VHF TRANSPONDERS FOR A MOBILE WEATHER MODIFICATION SYSTEM  
AUTHOR: KLEPPE, J A  
SPONSORING AGENCY: UNIVERSITY OF NEVADA  
SATELLITE: ATS-3 AND ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: JUL 72 - JUL 73  
OBJECT OF EXPERIMENT: TO OBSERVE THE EFFECTS OF CLOUD SEEDING USING REMOTELY CONTROLLED RADAR  
ABSTRACT: A PROPOSAL TO OUTLINE AN EXPERIMENT USING CARRIER SHIFT TECHNIQUES FOR STUDYING THE POSSIBILITY OF  
INCREASING THE MAXIMUM DATA RATE THROUGH VHF TRANSPONDERS.  
SUBJECT: DATA TRANSMISSION METEOROLOGY  
KEYWORDS: WEATHER: RADAR DATA: DATA TRANSMISSION: VHF: CLOUDS: ATS-3: CARRIER SHIFT: WEATHER MODIFICATION: TR  
ANSponders

UNIVERSITY OF DAYTON ACCESS NUMBER: 6

DATE OF DOCUMENT/TYPE: DEC 71 / PROPOSAL  
TITLE OF DOCUMENT: TRANSMISSIONS OF HURRICANE RADAR DATA VIA ATS-3  
AUTHOR: KLEPPE, J A  
SPONSORING AGENCY: UNIVERSITY OF NEVADA RESEARCH CORPORATION, BOULDER, COLORADO  
SATELLITE: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: DEC 71 - FEB 72  
OBJECT OF EXPERIMENT: TRANSMISSIONS OF HURRICANE RADAR DATA VIA ATS-3  
ABSTRACT: THIS IS A LETTER FROM R. B. HARSTEN CONFIRMING KLEPPE'S EARLIER REQUEST FOR USE OF ATS-3 TO TRANSMIT  
RADAR HURRICANE DATA FROM HURRICANES OFF FLORIDA IN THE ATLANTIC TO MIAMI HURRICANE CENTER.  
SUBJECT: DATA TRANSMISSION METEOROLOGY  
KEYWORDS: RADAR DATA; HURRICANE; VHF; TRANSPONDERS; ATS-3

UNIVERSITY OF DAYTON ACCESS NUMBER: 7

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DATE OF DOCUMENT/TYPE: 25 MAR 74 / REQUEST FOR USE OF ATS SATELLITE

TITLE OF DOCUMENT: APPLICATION FOR THE USE OF THE ATS-VHF STATION ON BOARD THE T/V TEXAS CLIPPER

AUTHOR: CLAYTON, W H

SPONSORING AGENCY: TEXAS A AND M UNIVERSITY, MOODY COLLEGE OF MARINE SCIENCE AND MARITIME RESOURCES

SATELLITE: ATS-3 EXPERIMENT PERIOD: 01 JUN - 05 AUG 74

OBJECT OF EXPERIMENT: TO COLLECT AND DO RESEARCH IN THE FOLLOWING AREAS: (1) OCEAN CHLOROPHYLL AND TEMPERATURE DETERMINATIONS, (2) VISUAL AND IR WEATHER SATELLITE, (3) ELECTRONIC BATHYOTHERMOGRAMS, AND (4) SALINITY MEASUREMENTS

ABSTRACT: THIS IS A REQUEST FOR USE OF ATS-3 AS A VHF STATION COMMUNICATIONS AND DATA TRANSMISSION LINK FOR A CARIBBEAN CRUISE OF THE T/V TEXAS CLIPPER.

SUBJECT: METEOROLOGY MARINE SCIENCE

KEYWORDS: ATS-3; VHF; WEATHER; SHIPS; OCEANOGRAPHY; CHLOROPHYLL; TEMPERATURE MEASUREMENT; SALINITY; BATHYOTHERMOGRAMS

UNIVERSITY OF DAYTON ACCESS NUMBER: 9

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DATE OF DOCUMENT/TYPE: APR 72 / PROGRESS REPORT

TITLE OF DOCUMENT: TECHNICAL CHARACTERISTICS OF SYSTEMS PROVIDING COMMUNICATION AND/OR RADIODETERMINATION USING SATELLITE TECHNIQUES FOR AIRCRAFT AND/OR SHIPS

AUTHOR: C.C.I.R. STUDY GROUPS

SPONSORING AGENCY: C.C.I.R. STUDY GROUPS

SATELLITE: ATS: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: 1976-1973

OBJECT OF EXPERIMENT: TO OBTAIN EXPERIMENTAL DATA ON THE USE OF SATELLITES FOR THE AERONAUTICAL AND MARITIME RADIO SERVICE

ABSTRACT: SEVERAL SERIES OF TESTS HAVE BEEN CONDUCTED BY THE UNITED STATES OF AMERICA, THE FEDERAL REPUBLIC OF GERMANY, THE UNITED KINGDOM, AND THE NETHERLANDS TO OBTAIN EXPERIMENTAL DATA ON THE USE OF SATELLITES FOR THE AERONAUTICAL AND MARITIME RADIO SERVICE. DATA HAS BEEN COLLECTED THROUGHOUT THE ATLANTIC AND PACIFIC REGIONS AND ACROSS THE WESTERN HEMISPHERE FROM THE ARCTIC TO THE ANTARCTIC. THE VHF EXPERIMENT IN THE APPLICATIONS TECHNOLOGY SATELLITES ATS-1 AND ATS-3 (PROVIDED BY THE UNITED STATES OF AMERICA) WERE USED IN EACH CASE.

CONCLUSION: THE RESULTS OF TESTS CONDUCTED ON THE APPLICATIONS TECHNOLOGY SATELLITES (ATS) OVER THE LAST FIVE YEARS HAVE DEMONSTRATED THAT A VHF SATELLITE SERVICE WOULD BE TECHNICALLY FEASIBLE. FURTHER, IT WAS DEMONSTRATED THAT SATELLITES EMPLOYING VHF WILL PROVIDE SATISFACTORY COMMUNICATIONS OVER OCEANIC ENVIRONMENTS WHERE PRESENT-DAY COMMUNICATIONS TECHNIQUES ARE LIMITED BY THE CURVATURE OF THE EARTH AND/OR VARYING PROPAGATION CONDITIONS.

SUBJECT: AIRCRAFT COMMUNICATIONS MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-1; ATS-3; COMMUNICATIONS; UNITED KINGDOM; WEST GERMANY; NETHERLANDS; SHIPS; AIRCRAFT; MARITIME SERVICE

TECHNICAL REPORT NUMBER: 8/139-E UNIVERSITY OF DAYTON ACCESS NUMBER: 10

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DATE OF DOCUMENT/TYPE: 1971 / PROPOSAL

TITLE OF DOCUMENT: THE LISTER HILL CENTER'S EXPERIMENTAL SATELLITE COMMUNICATIONS PROJECT

AUTHOR: LISTER HILL CENTER FOR BIOMEDICAL COMMUNICATIONS

SPONSORING AGENCY: NATIONAL LIBRARY OF MEDICINE, LISTER HILL CENTER FOR BIOMEDICAL COMMUNICATIONS

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO DETERMINE THE DEGREE TO WHICH SATELLITE COMMUNICATIONS TECHNOLOGY CAN BE USED FOR BIOMEDICAL COMMUNICATIONS IN REMOTE AREAS WHERE COMMON CARRIER TELECOMMUNICATIONS SERVICES DO NOT EXIST OR ARE SEVERELY LIMITED.

ABSTRACT: THIS PLAN PRESENTS THE TECHNICAL DETAILS OF AN EXPERIMENTAL PROJECT AIMED AT EXPLORING THE USE OF SATELLITE COMMUNICATIONS TECHNOLOGY AND MODALITIES TO SUPPORT HEALTH CARE EDUCATION AND THE DELIVERY OF HEALTH CARE SERVICES IN SELECTED AREAS OF ALASKA. THE PROJECT INVOLVES THE USE OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S APPLICATIONS TECHNOLOGY SATELLITE (ATS) FACILITIES AND SATELLITE COMMUNICATIONS TERMINALS LOCATED IN EACH PARTICIPATING ORGANIZATION.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: BIOMEDICAL; COMMUNICATIONS; VHF; ELECTROCARDIOGRAPH; FACSIMILE; TELEVISION; ATS-1; ALASKA

\* UNIVERSITY OF DAYTON ACCESS NUMBER: 11

DATE OF DOCUMENT/TYPE: FEB 72 / PROGRESS REPORT

TITLE OF DOCUMENT: SECOND INTERIM REPORT TO NASA FROM THE UNIVERSITY OF HAWAII

AUTHOR: BYSTROM, J W; NOSE, K; COSTA, A

SPONSORING AGENCY: THE UNIVERSITY OF HAWAII

SATELLITE: ATS-1

EXPERIMENT PERIOD: FEB 71 - JAN 72

OBJECT OF EXPERIMENT: THE PURPOSE OF THE PEACESAT PROJECT IS TO DEMONSTRATE THE BENEFITS OF CURRENTLY AVAILABLE TELECOMMUNICATION TECHNOLOGY WHEN APPLIED SPECIFICALLY TO THE NEEDS OF SPARSELY POPULATED, LESS INDUSTRIALIZED AREAS OF THE WORLD. THE PROJECT PROVIDES AN INTERCONTINENTAL LABORATORY TO DEVELOP IMPROVED COMMUNICATION METHODS FOR EDUCATIONAL, HEALTH AND COMMUNITY SERVICES IN THE PACIFIC AND IS A BASE FOR LONG RANGE PLANNING OF EFFECTIVE COMMUNICATION SYSTEMS AND THEIR APPLICATION.

ABSTRACT: THIS INTERIM REPORT (1) DEFINES PURPOSE AND ADMINISTRATION OF THE PEACESAT PROJECT; (2) DESCRIBES NETWORK DEVELOPMENT INCLUDING UNIVERSITY OF HAWAII GROUND STATIONS LINKING MANOA AND HILO CAMPUSES AND WELLINGTON POLYTECHNIC IN NEW ZEALAND; (3) DISCUSSES USER APPLICATIONS TO INCLUDE A USER NEEDS STUDY, INSTRUCTIONAL DEMONSTRATIONS, MEDICAL DIAGNOSTIC SERVICES, BROADCASTING, AND LIBRARY SERVICES; (4) GIVES A BRIEF TECHNICAL REPORT ON TRANSMITTING RECEIVING EQUIPMENT AND COMMUNICATIONS PROCESSES; AND (5) DESCRIBES FUTURE NEEDS.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: COMMUNICATIONS; TELECOMMUNICATION; PACIFIC; PEACESAT; ATS-1; USERS NEEDS; DIAGNOSTIC SERVICES

UNIVERSITY OF DAYTON ACCESS NUMBER: 12

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DATE OF DOCUMENT/TYPE: 1970

/ TECHNICAL REPORT

TITLE OF DOCUMENT: NASA ATS VHF EXPERIMENT ARINC/AIRLINES SATCOM PROGRAM--REPORT OF VHF SATELLITE COMMUNICATIONS TRIALS WITH BOEING 747 AIRCRAFT

AUTHOR: PETRY, C A

SPONSORING AGENCY: AERONAUTICAL RADIO, INC., (ARINC), ANNAPOLIS, MARYLAND

SATELLITE: ATS-1, ATS-3

OBJECT OF EXPERIMENT: TO CONDUCT A SERIES OF AERONAUTICAL SATELLITE VHF COMMUNICATIONS TESTS WITH THE BOEING 747 "SUPER JET" AND NASA ATS-1 AND ATS-3 SATELLITES

ABSTRACT:

THESE EXPERIMENTS PERMITTED A CONTINUATION OF SATELLITE-RELAY COMMUNICATION TRIALS WITH SCHEDULED FLIGHTS ON OCEANIC ROUTES UNDER THE TYPICAL ENVIRONMENTAL CONDITIONS, USING FOR THE FIRST TIME AN AIRCRAFT INSTALLATION DESIGNED FOR THE SERVICE. IN THIS RESPECT THE TESTS PROVIDED THE BASIS FOR AN OPERATIONAL EVALUATION OF THE AIRBORNE SYSTEM, THE COLLECTION OF ADDITIONAL SCIENTIFIC DATA AND A DEMONSTRATION TO THE AIRCRAFT CREWS AND AIRLINE OFFICIALS OF THE POTENTIAL SERVICE POSSIBILITIES OF AN EVENTUAL OPERATIONAL SYSTEM. THESE TEST RESULTS ARE BEING COMPARED WITH THOSE OF EARLIER TESTS CONDUCTED WITH DEVELOPMENTAL EQUIPMENTS ON THE AIRCRAFT. INITIAL TESTS ON THE 747 INDICATED THAT THE ANTENNA PERFORMANCE IS COMMENDABLE ON THE NEW YORK-SAN JUAN ROUTE WHERE ELEVATION ANGLES GREATER THAN 45 DEGREES FROM THE AIRCRAFT TO THE SATELLITE ARE ENCOUNTERED. IT WAS ARRANGED FOR SEVERAL ADDITIONAL TESTS TO BE CONDUCTED WHILE THE AIRCRAFT COULD BE ASSIGNED TO THIS ROUTE OVER A PERIOD OF SEVERAL MONTHS, TO CONFIRM A BASE LINE OF PERFORMANCE HOPEFULLY REPRESENTATIVE TO WHAT MIGHT BE EXPECTED WITH AN OPERATION SYSTEM EMPLOYING A CIRCULARLY POLARIZED ANTENNA ON THE SATELLITE.

IN SUMMARY, IT IS HOPEFUL THAT THIS SERIES OF TESTS WILL SERVE TO EVALUATE OVERALL PERFORMANCE, THE RELIABILITY OF SERVICE AND REPEATABILITY OF RESULTS WHILE EVALUATING THE BOEING 747 SATCOM ANTENNA, AND THE AVIONICS INSTALLATION DEVELOPED FOR SATELLITE RELAY COMMUNICATIONS AT VHF.

SUBJECT: VOICE COMMUNICATION

KEYWORDS: VHF; SATCOM; ANTENNA; BOEING 747; ATS-1; ATS-3

UNIVERSITY OF DAYTON ACCESS NUMBER: 13

DATE OF DOCUMENT/TYPE: OCT 71 / PROPOSAL

TITLE OF DOCUMENT: EXPERIMENTAL PLAN FOR THE INVESTIGATION OF SATELLITE COMMUNICATION UTILITY FOR LAW ENFORCEMENT FACSIMILE AND DATA TRANSMISSION

AUTHOR: REED, W L; BYKOWSKI, R F

SPONSORING AGENCY: PROJECT SEARCH--CALIFORNIA CRIME TECHNOLOGICAL RESEARCH FOUNDATION

SATELLITE: ATS-3

EXPERIMENT PERIOD: 20 SEP 71 - 29 FEB 72

OBJECT OF EXPERIMENT: TO DETERMINE WHETHER OR NOT THE ADVANCED TECHNOLOGY AVAILABLE THROUGH SATELLITE APPLICATIONS TO CONTROLS AND SYSTEMS INTERACTION AND HIGH SPEED INFORMATION TRANSFER IS OF PRACTICAL VALUE IN LAW ENFORCEMENT.

ABSTRACT: THIS SATELLITE EXPERIMENT IS INTENDED TO (1) EVALUATE THE WORTH OF RECEIVING FINGERPRINT DATA WITHIN A MATTER OF MINUTES INSTEAD OF DAYS AS IS THE CURRENT PRACTICE, (2) DETERMINE THE CHARACTERISTICS OF THE FACSIMILE EQUIPMENT THAT ARE NECESSARY FOR THE TRANSMISSION OF ACCEPTABLE FINGERPRINT DATA, AND (3) DETERMINE MINIMUM COMMUNICATION PARAMETERS NECESSARY FOR ACCEPTABLE FACSIMILE FINGERPRINT DATA.

SUBJECT: LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS

KEYWORDS: LAW; LAW ENFORCEMENT; FINGERPRINT; FACSIMILE; ATS-3; DATA TRANSMISSION

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DATE OF DOCUMENT/TYPE: MAR 74 / TECHNICAL REPORT

TITLE OF DOCUMENT: AN EXPERIMENT WITH MARITIME SATELLITE MULTIMODE COMMUNICATIONS AND POSITION FIXING

AUTHOR: LAROSA, R M; ANDERSON, R E; HOFFMAN, H

SPONSORING AGENCY: EXXON CORPORATION/NEW YORK, NEW YORK; GENERAL ELECTRIC CORPORATION/SCHENECTADY, NEW YORK

SATELLITE: ATS-1, ATS-3 EXPERIMENT PERIOD: JUL 73 - FEB 74

OBJECT OF EXPERIMENT: TO AID IN SHIP OPERATIONS. SPECIFICALLY (1) TO STUDY VOICE, TELETYPE, FACSIMILE, AND SLOW-SCAN TELEVISION COMMUNICATION BETWEEN LAND-SHIP AND SHIP-LAND, AND (2) TO STUDY POSITION FIXING OF SHIPS VIA SATELLITE.

ABSTRACT: THE USE OF GEOSTATIONARY SATELLITES TO AID SHIP OPERATIONS WAS TESTED BY THE EXXON CORPORATION AND GENERAL ELECTRIC FROM MID-JULY 1973 THROUGH FEBRUARY 1974. THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION PROVIDED THE USE OF THE ATS-3 AND ATS-1 SATELLITES FOR ONE HOUR EACH WORKING DAY AND EVENING HOURS WERE MADE AVAILABLE WHEN NEEDED. IN RETURN FOR THE USE OF THE SATELLITES, THE TWO CORPORATIONS AGREED TO PUBLISH THE RESULTS OF THE EXPERIMENT.

VOICE, TELETYPE, FACSIMILE AND SLOW-SCAN TELEVISION COMMUNICATIONS WERE TESTED BETWEEN THE EXXON OFFICES IN NEW YORK CITY AND THE ESSO BAHAMAS, A 32,000 TON TANKER IN SERVICE BETWEEN THE EASTERN UNITED STATES AND VENEZUELA. POSITION FIXING SERVICES WERE FURNISHED BY THE USE OF GENERAL ELECTRIC'S TONE-CODE RANGING TECHNIQUE.

THE EXPERIMENT INCLUDED WHAT IS BELIEVED TO BE THE FIRST TEST OF A COMPLETE SYSTEM TO LOCATE SHIPS BY AUTOMATIC RANGING FROM GEOSTATIONARY SATELLITES. THE COMPLETE SYSTEM INCLUDED LOCATING TWO SATELLITES IN REAL TIME BY TRILATERATION USING A WORLD-WIDE NETWORK OF AUTOMATIC TRANSPONDERS, TWO-SATELLITE RANGING TO THE AUTOMATIC TRANSPONDER ON THE SHIP, COMPUTATION OF THE FIXES ASHORE, AND RELAY BY TELETYPE OF THE POSITION FIXES TO THE SHIP.

CONCLUSION: THE EXPERIMENT VERIFIED THAT IMPROVED COMMUNICATIONS PROVIDED BY SATELLITE CAN IMPROVE OPERATING EFFICIENCY AND SHIP MANAGEMENT SIGNIFICANTLY. THERE WERE NO OUTSTANDING TECHNICAL DIFFICULTIES AND AFTER AN INITIAL CHECKOUT PERIOD THE SHIPBOARD EQUIPMENT WAS OPERATED BY THE CREW WITH A MINIMUM OF INSTRUCTION, AND WITHOUT THE PRESENCE OF ANYONE ABOARD EXCEPT THE NORMAL CREW.

SUBJECT: DATA TRANSMISSION NAVIGATION VOICE COMMUNICATION

KEYWORDS: TELEVISION; FACSIMILE; RANGING; POSITION FIXING; SHIPS; ATS-1; ATS-3; MARITIME SATELLITE

DATE OF DOCUMENT/TYPE: AUG 71 / PROPOSAL

TITLE OF DOCUMENT: DRAFT PROPOSAL FOR COLLABORATIVE STUDY OF X-RAY IMAGE TRANSMISSION

AUTHOR: LESTER, R G ; O'FOGHLEUDA, F

SPONSORING AGENCY: DUKE UNIVERSITY

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO HELP PROVIDE CONTINUOUS RADIOLOGICAL SERVICE IN DISTRICTS WHICH NOW LACK IT

ABSTRACT: A TEAM CONSISTING OF NASA SCIENTISTS AND STAFF MEMBERS FROM DUKE DEPARTMENT OF RADIOLOGY WILL: (A) ARRANGE AN EXPERIMENTAL TRANSMISSION, AT FIRST OVER A CLOSED LOOP (NASA GROUND STATION TO SATELLITE AND BACK) AND LATER BETWEEN A FIXED OR MOBILE GROUND STATION AND A DUKE-OWNED HOSPITAL, JR BETWEEN TWO DUKE HOSPITALS; (B) EVALUATE THE CLINICAL WORTH OF THE TRANSMISSIONS; (C) STUDY FEASIBILITY AND COST OF A REGIONAL OR NATIONAL REMOTE RADIOLOGICAL SERVICE, HAVING PARTICULAR REGARD TO OPERATION AND MAINTENANCE IN HOSPITAL ENVIRONMENTS; AND (D) STUDY IMAGE-MANIPULATION TECHNIQUES WHICH WOULD REDUCE TRANSMISSION COST WITHOUT APPRECIABLE LOSS OF DIAGNOSTIC INFORMATION.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: X-RAY; RADIOLOGY; REMOTE SENSING; HEALTH; IMAGE TRANSMISSION

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DATE OF DOCUMENT/TYPE: APR 1972 / TECHNICAL REPORT

TITLE OF DOCUMENT: HIGH LATITUDE SCINTILLATION MEASUREMENTS AT L-BAND AND VHF (PRELIMINARY REPORT)

AUTHOR: PONNAPPA, P C; SERGHINI, S M

SPONSORING AGENCY: COMMUNICATIONS RESEARCH CENTRE/TELECOMMUNICATIONS AND ELECTRONICS BRANCH

SATELLITE: ATS-5 AND LES-6

EXPERIMENT PERIOD: JUL 71 - NOV 71

OBJECT OF EXPERIMENT: IN THE HIGH LATITUDE REGION OF THE EARTH'S SURFACE, IONOSPHERIC FADING AFFECTS THE PERFORMANCE OF VHF AND L-BAND SYSTEMS. THE OBJECT OF THE EXPERIMENT IS TO OBTAIN A LARGE STATISTICAL SAMPLE OF SCINTILLATION AT L-BAND AND VHF. THIS SHOULD PERMIT THE DETERMINATION OF SYSTEM MARGIN REQUIREMENTS AND THE FREQUENCY DEPENDENCE OF THE FADING.

ABSTRACT:

SIMULTANEOUS MEASUREMENTS OF THE 1550 MHZ (L-BAND) ATS-5 SIGNAL AND 254 MHZ (VHF) LES-6 SIGNAL ARE BEING MADE AT CHUPCHILL, MANITOBA (GEOMETRIC LATITUDE 69 DEGREES). 58 45 NORTH LATITUDE AND 94 4 WEST LONGITUDE.

ABOUT 75% OF THE DATA COLLECTED UP TO THE PRESENT HAS BEEN PROCESSED AND COMPUTER ANALYZED. THIS IS A PRELIMINARY REPORT ON THE RESULTS OBTAINED.

THE EXPERIMENTAL EQUIPMENT CONSISTS OF TWO INDEPENDENT RECEIVING SYSTEMS, ONE AT L-BAND AND ONE AT VHF.

STRIP CHART AND MAGNETIC TAPE RECORDINGS WERE MADE OF THE SIGNALS RECEIVED FROM THE TWO SATELLITES.

RECORDED SIGNALS WITH SCINTILLATION WERE SELECTED AND GROUPS OF 10 MINUTE SAMPLES WERE COMPUTER PROCESSED AND ANALYZED. FIGURES 3(A), 4(A), 5(A), 6(A), 7(A), AND 8(A) SHOW SIGNAL AMPLITUDE RECORDINGS OF THE ATS-5 IN THE LOWER PORTION OF THE FIGURE AND THE LES-6 RECORDINGS IN THE UPPER PORTION OF THE FIGURE TAKEN DURING DAYS 281, 292, 293, 294, 296, AND 300, RESPECTIVELY. RESULTS SHOW FACTORS OF UP TO 10 DB IN PEAK-TO-PEAK AMPLITUDE OCCUR ON THE LES-6 SIGNAL AT 254 MHZ, WHILE ON THE ATS-5 SIGNAL AT 1550 MHZ, THE PEAK-TO-PEAK FADING IS LIMITED TO ABOUT 1 DB.

THE RECEIVING SYSTEMS WERE CALIBRATED BY INJECTING INTO THE SWITCH FOLLOWING EACH ANTENNA A CALIBRATING SIGNAL ATTENUATED TO PROVIDE REFERENCE POWER LEVELS CORRESPONDING TO THE RANGE OF EXPECTED SIGNALS. AT L-BAND (1550 MHZ) THE CALIBRATING SIGNAL IS VARIED FROM -110 DBM TO -120 DBM IN 1 DB STEPS. IN THE VHF CASE (254 MHZ) THE CALIBRATING SIGNAL IS VARIED FROM -110 DBM TO -140 DBM, ALSO IN 1 DB STEPS.

EXPERIMENTAL RESULTS HAVE DEMONSTRATED THAT COMMUNICATIONS SYSTEMS MARGIN REQUIREMENT DECREASES AS ONE APPROACHES L-BAND (1550 MHZ) RANGE FROM VHF (254 MHZ) RANGE.

SUBJECT:

DATA TRANSMISSION

METEOROLOGY

VOICE COMMUNICATION

KEYWORDS:

VHF; L-BAND; SCINTILLATION MEASUREMENTS; IONOSPHERE; ATS-5; FREQUENCY

UNIVERSITY OF DAYTON ACCESS NUMBER: 17

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DATE OF DOCUMENT/TYPE: NOV 71 / PROGRESS REPORT

TITLE OF DOCUMENT: THE NBS FREQUENCY AND TIME SATELLITE EXPERIMENT USING ATS-3

AUTHOR: HANSON, D.W.; HAMILTON, W.F.; GATTERER, L.E.

SPONSORING AGENCY: NATIONAL BUREAU OF STANDARDS

SATELLITE: ATS-3

EXPERIMENT PERIOD: AUG 71 - AUG 72

OBJECT OF EXPERIMENT: TO PROVIDE TIME AND FREQUENCY INFORMATION TO A LARGE NUMBER OF USERS.

ABSTRACT:

THIS PAPER PRESENTS WORK BEING DONE ON THE NBS TIME AND FREQUENCY DISSEMINATION EXPERIMENT USING NASA'S ATS-3 SATELLITE.

BEGINNING ON 1 AUGUST 1971, NBS BEGAN BROADCASTING THE WWV TIME AND FREQUENCY FORMAT FROM BOULDER, COLORADO, TO THE ATS-3 SATELLITE, WHICH THEN TRANSPONDS THE SIGNALS BACK TO THE EARTH.

THE SIGNALS TRANSMITTED FROM BOULDER ARE FREQUENCY MODULATED AND OCCUPY A 30-KILOHERTZ BANDWIDTH. THE SIGNALS ARE COMPOSED OF VOICE ANNOUNCEMENTS OF TIME-OF-DAY, TICKS EVERY SECOND, TONES, AND A TIME CODE. THESE SIGNALS ARE REFERENCED TO THE NBS UTC TIME SCALE.

WE THINK OF THE ATS-3 EXPERIMENT AS OFFERING THREE LEVELS OF SERVICE. THE FIRST LEVEL IS OBTAINED BY SIMPLY LISTENING TO THE TICKS AND VOICE ANNOUNCEMENTS FROM THE SATELLITE.

THE SECOND LEVEL OF SERVICE IS REALIZED WHEN ONE MEASURES ACCURATELY THE ARRIVAL TIME OF THE TRANSMITTED "TICKS" RELATIVE TO TICKS OF HIS LOCAL CLOCK.

THE THIRD LEVEL OF SERVICE SHOULD BE IN EFFECT BY 1 JANUARY 1972. OUR WORK WITH NASA'S ORBITAL ELEMENTS HAS GENERALLY ALLOWED US TO PREDICT THE DELAYS FROM BOULDER TO ANY POINT IN VIEW OF THE SATELLITE TO WITHIN 10 TO 20 MICROSECONDS.

SUBJECT: DATA TRANSMISSION VOICE COMMUNICATION

KEYWORDS: TIME DISSEMINATION; FREQUENCY; ATS-3; NATIONAL BUREAU OF STANDARDS; STANDARDS

UNIVERSITY OF DAYTON ACCESS NUMBER: 19

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DATE OF DOCUMENT/TYPE: APRIL 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: AIRBORNE SATELLITE COMMUNICATIONS DURING AURORAL STUDIES

AUTHOR: GARCIA, H M

SPONSORING AGENCY: EG&G, INC./ALBUQUERQUE, NEW MEXICO

SATELLITE: ATS-1

EXPERIMENT PERIOD: OCT 70 - NOV 70

OBJECT OF EXPERIMENT: TO DETERMINE THE FEASIBILITY OF USING A SATELLITE RADIO LINK IN THE MAINTENANCE OF VOICE COMMUNICATIONS BETWEEN TWO JET AIRCRAFT FLYING AT HIGH ALTITUDE IN OPPOSITE HEMISPHERES

ABSTRACT: AIRCRAFT NO. 60-370 WOULD DEPART FROM ELMENDORF AIR FORCE BASE, ANCHORAGE, ALASKA, FLY TO ITS INITIAL CONJUGATE POINT, THEN PROCEED NORTH ALONG A PRESCRIBED CONJUGATE POINT FLIGHT PATH FOR APPROXIMATELY THREE HOURS. AIRCRAFT NO. 60-369 WOULD DEPART FROM CHRISTCHURCH, NEW ZEALAND, APPROXIMATELY ONE-HALF HOUR PRIOR TO THE NORTHERN AIRCRAFT'S TAKEOFF, AND WOULD FLY SOUTH TO REACH ITS CONJUGATE POINT FLIGHT PATH COINCIDENT WITH THE NORTHERN AIRCRAFT. THE AIRCRAFT WOULD MAINTAIN GEOMAGNETIC CONJUGACY ACCORDING TO THE MISSION PROFILE BY COMMUNICATING WITH EACH OTHER VIA SATELLITE, AND VARYING AIRSPEED WHEN THE NEED WAS INDICATED. THE IMPORTANCE OF THE SATELLITE COMMUNICATIONS SYSTEM STEMMED FROM THIS NEED FOR THE MAINTENANCE OF BI-HEMISPHERIC SPATIAL AND TEMPORAL CONJUGACY, AND FROM THE NEED FOR LATER COORDINATION IN ORDER TO COMPARE SYSTEM PARAMETERS AND LIVE AURORAL DATA

#### CONCLUSION:

FROM THIS SECOND EXPERIMENTAL USE OF THE ATS-1 COMMUNICATIONS LINK, IT CAN BE CONCLUDED THAT AIRCRAFT POSITIONAL CONJUGACY CAN BE EFFECTED BY SATELLITE COMMUNICATIONS MORE ACCURATELY AND EFFICIENTLY THAN BY ANY OTHER MEANS PRESENTLY AVAILABLE TO THIS PROGRAM.

IT CAN ALSO BE CONCLUDED THAT WHEN SYSTEMS AND PEOPLE ARE DEPLOYED TO DISTANT AND FOREIGN LANDS, ULTRA-RELIABLE SYSTEM COMPONENTS ARE REQUIRED TO ACHIEVE FULL-TIME COMMUNICATIONS, UNINTERRUPTED BY SYSTEM MALFUNCTION.

FOR ANY FUTURE USE OF THE ATS COMMUNICATIONS SATELLITE, IT IS STRONGLY RECOMMENDED THAT COMPREHENSIVE COORDINATION BETWEEN PERSONNEL WHO IMPLEMENT THE AIRCRAFT SYSTEMS AND THE NASA'S ATS PROJECT BE UNDERTAKEN FAR IN ADVANCE OF THE INTENDED TIME OF SYSTEM USAGE. IMPLEMENTATION AND CHECK-OUT OF THE AIRCRAFT COMPONENTS COULD THEN BE ACCOMPLISHED WITH A COMPLETE UNDERSTANDING OF THE TOTAL SYSTEM'S CAPABILITIES AND LIMITATIONS.

SUBJECT: VOICE COMMUNICATION

KEYWORDS: COMMUNICATIONS; AIRCRAFT; SATELLITE COMMUNICATION; AURORAL; VOICE COMMUNICATION; ATS-1

UNIVERSITY OF DAYTON ACCESS NUMBER: 20

DATE OF DOCUMENT/TYPE: JAN 72 / TECHNICAL REPORT

TITLE OF DOCUMENT: AIRBORNE SATELLITE COMMUNICATIONS DURING AURORAL STUDIES

AUTHOR: GARCIA, M M

SPONSORING AGENCY: EGIG, INC./ ALBUQUERQUE, N. M.

SATELLITE: ATS-1

EXPERIMENT PERIOD: SEP 71

OBJECT OF EXPERIMENT: TO PROVIDE SYSTEMS FOR USE IN A SATELLITE RADIO LINK TO MAINTAIN VOICE COMMUNICATION BETWEEN TWO JET AIRCRAFT FLYING AT HIGH ALTITUDES AND IN OPPOSITE HEMISPHERES

ABSTRACT:

THE SEPTEMBER 1971 CONJUGATE AURORAL MEASUREMENTS STUDIES (AND THOSE OF 1968 AND 1970) WERE CONDUCTED BY THE LOS ALAMOS SCIENTIFIC LABORATORIES (LASL), WITH SUPPORT FROM EGIG. THE PROGRAM USED AIR FORCE SYSTEMS COMMAND NC-135 AIRCRAFT THAT WERE BASED AT KIRTLAND AFB, NEW MEXICO. THESE AIRCRAFT ARE SCIENTIFICALLY INSTRUMENTED "FLYING LABORATORIES."

IN ADDITION TO THE AIRBORNE SYSTEMS, A GROUND STATION WAS ESTABLISHED AT KIRTLAND AFB, NEW MEXICO. THE INTENT OF THIS GROUND STATION WAS TO ASSIST IN RELAYING POSITIONAL INFORMATION SHOULD AIRCRAFT-TO-AIRCRAFT COMMUNICATIONS NOT BE ACHIEVED. THE GROUND STATION WOULD ALSO ACT AS A "HOME BASE" CONTACT FOR THE TRANSFER OF INFORMATION, MESSAGES, AND OTHER PERTINENT DATA.

THE UNIVERSITY OF ALASKA GAVE PROGRAM PERSONNEL PERMISSION TO USE ITS GROUND STATION AT COLLEGE, ALASKA, TO SUPPLEMENT THE KIRTLAND-BASED STATION.

THE ATS CONTROL'S GROUND STATION, AT ROSMAN, WAS ALSO REQUESTED TO MONITOR ALL COMMUNICATIONS DURING THE SCHEDULED OPERATIONS OF THE AURORAL MISSION.

CONCLUSION:

FROM THE EXPERIMENTAL USE OF ATS-1 DURING THE SEPTEMBER 1971 CONJUGATE AURORAL FLIGHTS, IT CAN BE CONCLUDED THAT AIRCRAFT-TO-AIRCRAFT BI-HEMISPHERICAL VOICE COMMUNICATIONS CAN BE ACHIEVED. CAREFUL SELECTION OF SYSTEM COMPONENTS, AND CONSIDERED PLACEMENT OF THE ANTENNAE WILL PROVIDE ADEQUATE SYSTEM PERFORMANCE AND RELIABILITY.

THE USE OF AN INTERMEDIATE GROUND STATION TO SERVE AS A RELAY POINT ENSURES CONTACT WITH ALL ELEMENTS OF THE TEST AT THOSE TIMES WHEN ATMOSPHERIC NOISE CONDITIONS PROHIBIT CLEAR AIRCRAFT-TO-AIRCRAFT COMMUNICATIONS. THE GROUND STATION, BY USING A HIGH GAIN ANTENNA, CAN OVERCOME ATMOSPHERIC NOISE.

SUBJECT: VOICE COMMUNICATION

KEYWORDS: ATS-1; VOICE COMMUNICATION; COMMUNICATIONS; AIRCRAFT; AURORAL; SATELLITE COMMUNICATION

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DATE OF DOCUMENT/TYPE: JUN 72 / TECHNICAL REPORT

TITLE OF DOCUMENT: MARITIME SATELLITE NAVIGATION/COMMUNICATION PROGRAM: PHASE 2 - EXPERIMENT SYSTEM DEVELOPMENT AND OPERATION: MARITIME SHIPPING USER PLAN

AUTHOR: REBMAN, J A

SPONSORING AGENCY: APPLIED INFORMATION INDUSTRIES/MORRISTOWN, N. J.

SATELLITE: ATS-5, ATS-3 COMMUNICATIONS: C-BAND EXPERIMENT PERIOD: 1971 - 1973

OBJECT OF EXPERIMENT: TO DETERMINE WHETHER PRESENT SPACE TECHNOLOGY AND TECHNIQUES COULD BE TRANSLATED INTO AN OPERATIONAL SYSTEM WHICH WOULD PROVIDE SIGNIFICANT ECONOMIC BENEFITS TO THE UNITED STATES MARITIME TRANSPORTATION INDUSTRY BY THE LATE 1970'S

ABSTRACT: THE UNITED STATES MARITIME ADMINISTRATION (MARAD) IS ENGAGED IN A CONCERTED EFFORT TO IMPROVE THE COMPETITIVE POSITION OF THE UNITED STATES MARITIME INDUSTRY BY THE DEVELOPMENT AND INTRODUCTION OF NEW SYSTEMS, TECHNIQUES AND FACILITIES WHICH WILL RESULT IN HIGHLY EFFICIENT SHIP AND FLEET OPERATIONS. RECENT ADVANCES IN SPACE TECHNOLOGY HAVE INDICATED THAT SATELLITE SYSTEMS CAN PLAY A MAJOR ROLE IN IMPROVING MARITIME OPERATIONS IN THE AREA OF RELIABLE SHIP-TO-SHORE COMMUNICATIONS AND NAVIGATION.

IN ORDER TO EXPLOIT THIS NEW TECHNOLOGY, THE MARAD INITIATED A MARITIME SATELLITE NAVIGATION/COMMUNICATION PROGRAM IN 1970 TO DETERMINE WHETHER PRESENT SPACE TECHNOLOGY AND TECHNIQUES COULD BE TRANSLATED INTO AN OPERATIONAL SYSTEM WHICH WOULD PROVIDE SIGNIFICANT ECONOMIC BENEFITS TO THE UNITED STATES MARITIME TRANSPORTATION INDUSTRY BY THE LATE 1970'S. A MULTIPHASE DEVELOPMENTAL PROGRAM TO BE CONDUCTED OVER FIVE YEARS HAS ORGANIZED IN THE FOLLOWING STEPS.

THE FIRST PHASE, COMPLETED IN JUNE 1971, DEFINED A SYSTEM CONCEPT EMPLOYING SYNCHRONOUS SATELLITES AS RELAY STATIONS LINKING SHIPS TO A SHORE-BASED MARITIME COORDINATION CENTER, AND DEMONSTRATED THE FEASIBILITY OF TWO-WAY L-BAND COMMUNICATIONS BETWEEN SHIP AND SHORE VIA THE NASA ATS-5 SATELLITE USING RELATIVELY SIMPLE EXPERIMENTAL TERMINALS.

THE SECOND PHASE, CURRENTLY UNDERWAY, INVOLVES THE DEVELOPMENT AND OPERATION OF AN EXPERIMENTAL MARITIME NAVIGATION/COMMUNICATIONS SYSTEM TO OBTAIN DATA AND INFORMATION ON OPERATIONAL AND TECHNICAL REQUIREMENTS FOR THE DESIGN OF AN EFFECTIVE OPERATIONAL SYSTEM. IN ORDER TO LIMIT THE COSTS OF THESE DEVELOPMENTS AND TO ADVANCE THE SCHEDULE, EXISTING NASA SATELLITES WITH C-BAND TRANSPONDERS ARE BEING USED FOR THE SPACE RELAY PLATFORMS. AN ESSENTIAL FEATURE OF THIS PHASE IS THE IDENTIFICATION AND DEVELOPMENT OF INTERFACES BETWEEN THE VARIOUS COMMERCIAL ORGANIZATIONS AND GOVERNMENT AGENCIES WHICH ARE IMPORTANT TO THE SUCCESS OF THE OVERALL SYSTEM.

PHASE 3 IS THE EXTENSION OF THE EXPERIMENTAL NAVIGATION/COMMUNICATIONS SYSTEM INTO A PROTOTYPE SYSTEM PROVIDING OCEANIC COMMUNICATION AND NAVIGATION CAPABILITIES AT THE L-BAND RADIO FREQUENCY BAND AND ALLOCATED BY THE 1971 GENEVA WORLD ADMINISTRATION RADIO CONFERENCE FOR SPACE COMMUNICATIONS, IN INTERNATIONAL TELECOMMUNICATION UNION, FOR MARITIME APPLICATIONS.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: MARITIME; TRANSPORTATION; NAVIGATION; COMMUNICATIONS; SHIPS; ATS-3; ATS-5; C-BAND; TELECOMMUNICATIONS

DATE OF DOCUMENT/TYPE: MAY 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: VHF RANGING AND POSITION FIXING EXPERIMENT USING ATS SATELLITES: FINAL REPORT ON PHASES 1 AND 2

AUTHOR: ANDERSON, R E

SPONSORING AGENCY: GENERAL ELECTRIC CO./CORPORATE R&D, SCHENECTADY, N.Y.

SATELLITE: ATS-1, ATS-3 EXPERIMENT PERIOD: NOV 68 - MAY 71

OBJECT OF EXPERIMENT: TO SHOW THAT GEOSTATIONARY SATELLITES CAN PROVIDE SUPERIOR COMMUNICATIONS AND POSITION SURVEILLANCE FOR MOBILE CRAFT

ABSTRACT:

A TWO AND ONE-HALF YEAR TESTING PROGRAM WITH THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S ATS-1 AND ATS-3 SPACECRAFT HAS SHOWN THAT GEOSTATIONARY SATELLITES CAN PROVIDE SUPERIOR COMMUNICATIONS AND POSITION SURVEILLANCE FOR MOBILE CRAFT. THE TESTS PROVED THAT INEXPENSIVE MODIFICATIONS TO CONVENTIONAL MOBILE COMMUNICATIONS EQUIPMENT ABOARD THE CRAFT CAN PROVIDE RELIABLE, HIGH QUALITY VOICE AND DIGITAL COMMUNICATIONS WITH DISTANT GROUND STATIONS AND OTHER VEHICLES, AND AUTOMATIC SURVEILLANCE OF THE POSITIONS OF ALL THE CRAFT BY A GROUND FACILITY. THE TESTS ALSO DEMONSTRATED THE LOCATION AND AUTOMATIC READOUT OF REMOTE DATA COLLECTION PLATFORMS.

FREQUENCY MODULATION SIGNALS WITH THE NARROW AUDIO AND FREQUENCY BANDWIDTHS OF TERRESTRIAL MOBILE RADIO COMMUNICATIONS WERE RELAYED THROUGH THE VHF TRANSPONDERS OF THE GEOSTATIONARY SATELLITES. THE VOICE AND DIGITAL COMMUNICATIONS WERE FAR SUPERIOR IN RELIABILITY AND QUALITY TO LONG-DISTANCE MOBILE COMMUNICATIONS BY OTHER MEANS SUCH AS MEDIUM OR HIGH FREQUENCY RADIO. IT WAS SHOWN THAT ONE SATELLITE CAN PROVIDE NEARLY UNIFORM HIGH QUALITY PERFORMANCE OVER APPROXIMATELY ONE-THIRD OF THE EARTH'S SURFACE.

POSITION FIXES BY RANGE MEASUREMENT FROM THE TWO SATELLITES WERE ACCURATE TO APPROXIMATELY ONE NAUTICAL MILE, ONE SIGMA EXCEPT NEAR THE EQUATOR AND THE POLES. THE RANGING SIGNALS WERE NARROW BANDWIDTH FM LIKE THE VOICE AND DIGITAL SIGNALS AND WERE HIGHLY COMPATIBLE WITH THE COMMUNICATIONS.

A SINGLE INTERROGATION YIELDED RANGE MEASUREMENTS FROM TWO SATELLITES SO THAT A POSITION FIX COULD BE DETERMINED IN ABOUT ONE SECOND OF TIME. THE TECHNIQUE CAN BE MODIFIED TO LOCATE SEVERAL CRAFT WITHIN A SECOND.

SATELLITE COMMUNICATIONS WITH MOBILE CRAFT AND DATA COLLECTION PLATFORMS AND INDEPENDENT SURVEILLANCE OF THEIR POSITIONS IS PRACTICAL AT VHF (118-17.4 MHz). THERE IS NO QUESTION THAT A USEFUL SYSTEM COULD BE IMPLEMENTED WITH TECHNOLOGY THAT IS IMMEDIATELY AVAILABLE AND THAT USEFUL EQUIPMENT WOULD BE INEXPENSIVE, RELIABLE AND CONVENIENT.

THE USE OF VHF FOR SATELLITE APPLICATIONS IS RESTRICTED BECAUSE THERE IS NOT AN ADEQUATE NUMBER OF RADIO FREQUENCY CHANNELS TO FULFILL THE ANTICIPATED REQUIREMENTS. DATA COLLECTED DURING THE EXPERIMENT CAN BE USED TO ESTIMATE THE PERFORMANCE THAT WOULD BE ACHIEVED WITH OTHER SYSTEM PARAMETERS AND RANGING AT HIGHER FREQUENCIES, SUCH AS L-BAND, WHERE CHANNELS CAN BE ASSIGNED MORE EASILY AND WHERE IONOSPHERIC PROPAGATION DISTURBANCES ARE LESS THAN AT VHF.

THE PERFORMANCE OF VHF SATELLITE TRANSMISSION LINKS IS DEGRADED DUE TO IONOSPHERIC PROPAGATION EFFECTS AT SOME TIMES AND PLACES, ESPECIALLY IN TROPICAL AND HIGH LATITUDE REGIONS. THE SYSTEM CAN BE DESIGNED TO MINIMIZE THE PROPAGATION EFFECTS AND PROVIDE OPERATIONALLY ACCEPTABLE PERFORMANCE UNDER ALMOST ALL CONDITIONS.

SUBJECT: DATA TRANSMISSION VOICE COMMUNICATION

KEYWORDS: ATS-1; ATS-3; COMMUNICATIONS; POSITION FIXING; SURVEILLANCE; VOICE COMMUNICATION; DATA TRANSMISSION; VHF; L-BAND; IONOSPHERE; SHIPS; AIRCRAFT; POSITION FIXING

TECHNICAL REPORT NUMBER: S-71-1109

UNIVERSITY OF DAYTON ACCESS NUMBER: 23

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DATE OF DOCUMENT/TYPE: JAN 74 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR COOPERATIVE ARRANGEMENT BETWEEN KASHIMA RADIO RESEARCH LABS (JAPAN) AND GODDARD SPACE FLIGHT CENTER (NASA) FOR ATS-1 OPERATIONS

AUTHOR: BARNES, J H

SPONSORING AGENCY: KASHIMA BRANCH, RADIO RESEARCH LABS, TOKYO, JAPAN

SATELLITE: ATS-1

EXPERIMENT PERIOD: APR 74 - JUNE 75

OBJECT OF EXPERIMENT: (1) TO HAVE KASHIMA BRANCH OF RRL PLAN AND EXECUTE ATS-1 STATION KEEPING MANEUVERS INDEPENDENT OF NASA  
(2) TO HAVE KASHIMA BRANCH OF RRL CARRY OUT NECESSARY STEPS TO PLACE ATS-1 IN PROPER OPERATIONS MODE

ABSTRACT:

WITH REFERENCE TO RECENT DISCUSSIONS BETWEEN PERSONNEL OF THE KASHIMA BRANCH OF THE RADIO RESEARCH LABORATORIES (RRL) AND THE APPLICATIONS TECHNOLOGY SATELLITE (ATS) PROJECT OFFICE OF GODDARD SPACE FLIGHT CENTER (GSFC), WE ARE PLEASED TO PROPOSE A COOPERATIVE ARRANGEMENT WITH RRL UNDER WHICH THE KASHIMA GROUND STATION WOULD PERFORM, IN COOPERATION WITH GSFC, A PRE-OPERATIONAL EXPERIMENT FOR ORBIT DETERMINATION, PLANNING AND EXECUTION OF STATION KEEPING-MANEUVERS, AND SATELLITE CONTROL AND MONITORING FUNCTIONS USING NASA'S APPLICATIONS TECHNOLOGY SATELLITE-1 (ATS-1). THE DURATION OF THIS PROPOSED ARRANGEMENT WOULD BE FROM APPROXIMATELY APRIL, 1974 (AFTER LAUNCH OF ATS-1) UNTIL THE END OF JUNE, 1975, AND COULD BE EXTENDED BY MUTUAL AGREEMENT.

UNDER GSFC'S OPERATIONAL DIRECTION, KASHIMA COULD PLAN AND EXECUTE ATS-1 STATION KEEPING MANEUVERS WHICH COULD BE PERFORMED, AFTER AN APPROPRIATE PERIOD OF TRANSITION, INDEPENDENTLY OF THE NASA ROSMAN AND MOJAVE ATS STATIONS. FURTHER, ATS-1 ORBIT AND MANEUVER PLANS COULD BE GENERATED BY RRL COMPUTERS AT KASHIMA USING NASA PROGRAMS WITHOUT NEED OF INTERCONNECTION WITH GSFC'S COMPUTER SYSTEM.

DATA FROM THE ATS OPERATIONS CONTROL CENTER (ATSOCC) AT GSFC WOULD BE FORWARDED TO KASHIMA AS KASHIMA DATA IS PRESENTLY FORWARDED TO ATSOCC. IN ADDITION, THE EXPERIMENT COULD INCLUDE A PERIOD DURING WHICH KASHIMA WOULD CARRY OUT NECESSARY STEPS TO PLACE THE ATS-1 SPACECRAFT IN THE PROPER MODE FOR OPERATIONS.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-1; KASHIMA

UNIVERSITY OF DAYTON ACCESS NUMBER: 24

DATE OF DOCUMENT/TYPE: DEC 69 / PROPOSAL

TITLE OF DOCUMENT: A JOINT PROPOSAL FOR AN ATS SATELLITE CIRCUIT BETWEEN STANFORD UNIVERSITY AND COMISSAO NACIONAL DE ATIVIDADES ESPACIAS (CNAE)

AUTHOR: LUSIGNAH, B B

SPONSORING AGENCY: STANFORD UNIVERSITY, COMISSAO NACIONAL DE ATIVIDADES ESPACIAIS / BRAZIL

SATELLITE: ATS-3,ATS-1 EXPERIMENT PERIOD: JAN 70 - JUN 70

OBJECT OF EXPERIMENT: TO ESTABLISH A TWO-WAY LOW BAND WIDTH LINK BETWEEN THE SCHOOL OF ENGINEERING AT STANFORD UNIVERSITY AND COMISSAO NACIONAL DE ATIVIDADES ESPACIAIS IN SAO JOSE DOS CAMPOS, SAO PAULO, BRAZIL

ABSTRACT: MANY DIFFERENT KINDS OF INSTITUTIONS WILL HAVE USES FOR THE SYNCHRONOUS COMMUNICATIONS SATELLITE SERVICES, BUT THE MOST VARIED USES MAY BE FOUND AMONG EDUCATIONAL INSTITUTIONS. FOR THESE INSTITUTIONS SUCH LINKS COULD BE USED TO SHARE FORMAL LECTURES, SEMINARS, OR COLLOQUIA, TO COORDINATE RESEARCH OR JOINT STUDY PROJECTS, OR TO SHARE COMPUTATION FACILITIES. FOR UNITED STATES UNIVERSITIES SUCH USES COULD ENRICH PROGRAMS CARRIED OUT IN COOPERATION WITH FOREIGN UNIVERSITIES. THE FOREIGN UNIVERSITY, IN ADDITION, WOULD BE ABLE TO HAVE THEIR STUDENTS ACQUIRE MANY OF THE BENEFITS OF EDUCATION AT THE UNITED STATES UNIVERSITIES WITHOUT THE EXPENSE OF SENDING THEM TO THE UNITED STATES AND THE DANGER OF EXPOSING THEM TO THE "BRAIN DRAIN."

WHILE THESE KINDS OF BENEFITS WILL MAKE DIRECT SMALL-TERMINAL SATELLITE LINKS ATTRACTIVE TO MANY INSTITUTIONS, THERE STILL ARE A NUMBER OF QUESTIONS THAT MUST BE ANSWERED BEFORE SUCH USE CAN BE SERIOUSLY PROPOSED FOR OPERATIONAL USE. THERE ARE TECHNICAL QUESTIONS ON THE COST AND EASE OF OPERATION OF THE GROUND TERMINALS, ON THE RELATIVE COST OF MORE SATELLITE POWER VS. MORE RECEIVER SENSITIVITY, AND ON THE INTERFERENCE THAT SUCH GROUND STATIONS WILL EXPERIENCE BETWEEN TWO SATELLITES CLOSELY SPACED IN SYNCHRONOUS ORBIT. THERE ARE ALSO QUESTIONS ON THE REQUIRED SIGNAL TO NOISE RATIOS FOR ANY OF THE CONTEMPLATED USES AND THE EFFECT OF TIME DELAY ON THESE USES. AND FOR EDUCATIONAL INSTITUTIONS, MORE STUDY IS NEEDED TO DEFINE THE REAL USEFULNESS OF THE PROGRAMS THAT COULD BE CARRIED OVER SUCH LINKS.

IT IS TO ANSWER SOME OF THESE QUESTIONS THAT WE PROPOSE TO ESTABLISH A TWO-WAY LOW BANDWIDTH LINK BETWEEN THE SCHOOL OF ENGINEERING AT STANFORD UNIVERSITY AND THE COMISSAO NACIONAL DE ATIVIDADES ESPACIAIS (CNAE) IN SAO JOSE DOS CAMPOS, SAO PAULO, BRAZIL.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: COMMUNICATIONS; BRAZIL; STANFORD UNIVERSITY; ATS-1; ATS-3; EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 25

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DATE OF DOCUMENT/TYPE: SEP 74 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-1 REPORT - ANCHITKA ISLAND, ALASKA

AUTHOR: KAISER, R L

SPONSORING AGENCY: U.S. ATOMIC ENERGY COMMISSION

SATELLITE: ATS-1

EXPERIMENT PERIOD: MAY 74- SEP 74

OBJECT OF EXPERIMENT: TO ESTABLISH AN ATS GROUND STATION ON ANCHITKA ISLAND, ALASKA

ABSTRACT:

DURING THE LATTER PART OF 1973, A REQUEST WAS SUBMITTED THROUGH AEC HEADQUARTERS IN WASHINGTON, D.C., TO NASA FOR PERMISSION TO ESTABLISH AN ATS-1 SATELLITE GROUND STATION ON ANCHITKA ISLAND, ALASKA. AT THE TIME THE REQUEST WAS SUBMITTED, PERSONNEL ON THE ISLAND WERE INVOLVED IN A ROLL UP OF ALL FACILITIES FOLLOWING THE CANNIKIN EVENT. THE PLAN WAS TO RETURN THE ISLAND TO AS CLOSE ITS NATURAL STATE AS POSSIBLE.

IT WAS KNOWN THAT, ALTHOUGH THE ISLAND WOULD BE UNOCCUPIED AFTER THE ROLL UP WAS COMPLETED, A LONG TERM EFFECTS MONITORING PROGRAM WOULD REQUIRE PERIODIC REVISITS BY SMALL PARTIES OF SCIENTIFIC AND SUPPORT PERSONNEL WHO WOULD NEED SOME TYPE OF COMMUNICATIONS TO MAINTAIN CONTACT WITH THE AEC/NV. SINCE ANCHITKA IS LOCATED NEAR THE END OF THE ALEUTIAN CHAIN AND COMMUNICATIONS FACILITIES FOR CONTACT WITH THE LOWER 48 ARE ALMOST NONEXISTENT.

IT WAS PROPOSED, ON AN EXPERIMENTAL BASIS, TO ESTABLISH AN ATS-1 GROUND STATION THAT WOULD AFFORD A MEANS OF DAILY CONTACT WITH THE LOWER 48 FOR THE TRANSMISSION OF DATA AND OTHER RELEVANT INFORMATION DURING THE ROLL UP OF THE ISLAND. THE STATION WOULD ALSO PROVIDE A FACILITY THAT COULD BE USED BY THE SCIENTIFIC REVISIT PARTIES.

PERMISSION WAS RECEIVED FROM NASA AND A GROUND STATION WAS DESIGNED WITH THE NEEDS OF THE SCIENTIFIC REVISIT PARTIES IN MIND: I.E., TO BE READILY USEABLE OVER A LONG PERIOD OF TIME WITH A MINIMUM AMOUNT OF WORK REQUIRED FOR SETUP.

SCIENTIFIC AND SUPPORT PARTIES USED THIS EQUIPMENT VERY SATISFACTORILY IN CY-1974. ATS-1 SUPPORT WAS REQUESTED FROM NASA DURING THE PERIODS OF MAY - JUNE AND AUGUST - SEPTEMBER. IT IS ANTICIPATED THESE PARTIES WILL REVISIT THE ISLAND AGAIN IN THE FALL OF 1975 AND THE FALL OF 1976.

CONCLUSION:

IN SUMMARY, THE USE OF THE ATS-1 BY AEC AND ITS AFFILIATED AGENCIES/CONTRACTORS HAS ENHANCED THE OPERATIONAL ASPECTS OF THE POST-ANCHITKA PROGRAM BY PROVIDING DATA AND SCIENTIFIC OBSERVATIONS AS THEY DEVELOP. GENERALLY, ALL TRANSMISSIONS WERE RECEIVED AT BOTH LOCATIONS IN A SATISFACTORY MODE. SOME LOCAL INTERFERENCE AT THE LAS VEGAS STATION ON CERTAIN SCHEDULES DEGRADED THE QUALITY OF TRANSMISSION TO AN UNREADABLE LEVEL. THIS WAS CORRECTED BY A SLIGHT REARRANGEMENT OF SCHEDULED TIMES THROUGH THE COOPERATION OF ATS CONTROL AT GODDARD.

SUBJECT: DATA TRANSMISSION VOICE COMMUNICATION

KEYWORDS: ATS-1; ANCHITKA

DATE OF DOCUMENT/TYPE: AUG 72 / PROPOSAL  
TITLE OF DOCUMENT: OPPORTUNITIES FOR PARTICIPATION IN SPACEFLIGHT INVESTIGATIONS  
AUTHOR: MATTHEWS, C W  
SPONSORING AGENCY: OFFICE OF INTERNATIONAL AFFAIRS, NASA/WASHINGTON  
SATELLITE: ATS-1, ATS-3, ATS-5, EXPERIMENT PERIOD: PROPOSED CY-1975  
OBJECT OF EXPERIMENT: TO PIONEER THE USE OF THE NEWLY ALLOCATED 11.7 TO 12.2 GHZ FREQUENCY BAND FOR SATELLITE BROADCASTING FROM SPACE TO EARTH  
ABSTRACT: THIS IS AN INVITATION TO PROPOSE INVESTIGATIONS USING THE PLANNED CAS-C SATELLITE TO BE LAUNCHED IN 1975 JOINTLY BY NASA AND THE CANADIAN DEPARTMENT OF COMMUNICATIONS. THE DOCUMENT IS VALUABLE IN THAT IT CONTAINS A WEALTH OF ATS-1, 3, AND 5 USER EXPERIMENT SUMMARIES.  
SUBJECT: VOICE COMMUNICATIONS  
KEYWORDS: ATS-1; ATS-3; ATS-5; BROADCASTING; USER EXPERIMENTS

UNIVERSITY OF DAYTON ACCESS NUMBER: 28

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DATE OF DOCUMENT/TYPE: FEB 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: SCOMB-1: A SATELLITE COMMUNICATION OCEANOGRAPHIC AND METEOROLOGY BUOY

AUTHOR: HAGEN, B; JAHR, D; STROMME, J; SVERKHOLT, K

SPONSORING AGENCY: ROYAL NORWEGIAN COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH, OSLO, NORWAY

SATELLITE: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: 01 DEC 70 - 31 JAN 71

OBJECT OF EXPERIMENT: TO EVALUATE THE POSSIBILITIES OF SATELLITE RELAYED DATA TRANSMISSIONS FROM OCEAN PLATFORMS OPERATING AT HIGH LATITUDE

ABSTRACT: FOR SOME YEARS NOW BUOYS, AS A MEANS FOR MEASURING PHYSICAL PARAMETERS IN THE OCEAN ENVIRONMENT, HAVE ATTAINED WIDE INTEREST IN NORWAY. WHEN THE POSSIBILITY OF DATA TRANSMISSION VIA A SATELLITE AROSE, IT WAS DECIDED TO BUILD A NORWEGIAN EXPERIMENTAL BUOY TO EVALUATE SUCH A SYSTEM. THE BUOY WAS NAMED SCOMB-1, THE SATELLITE COMMUNICATION OCEANOGRAPHIC AND METEOROLOGICAL BUOY.

THE DEVELOPMENT AND TESTING OF THE SCOMB-1 SYSTEM WERE SPONSORED BY THE ROYAL NORWEGIAN COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH (INTNF) AND ITS SPACE ACTIVITY DIVISION. THE WORK HAS BEEN DONE IN COOPERATION BETWEEN SEVERAL ORGANIZATIONS. THE SINRAO COMPANY IS RESPONSIBLE FOR THE RADIO COMMUNICATION AND CONTROL EQUIPMENT, THE CHRISTIAN MICHELSON INSTITUTE (CHI) HAS SUPPLIED THE SENSORS AND THE BUOY STRUCTURE, AND THE ELECTRONICS LABORATORY OF THE TROMSO SATELLITE TELEMETRY STATION HAS DEVELOPED THE BUOY PCM ENCODER. THE TESTING AND EVALUATION OF THE SCOMB-1 HAS BEEN DONE BY CHI AND INTNF'S SPACE ACTIVITY DIVISION.

SCOMB-1 WAS DEVELOPED TO EVALUATE THE POSSIBILITIES OF SATELLITE RELAYED DATA TRANSMISSIONS FROM OCEAN PLATFORMS OPERATING AT HIGH LATITUDES. THE DATA TRANSMISSION IS INITIATED BY A COMMAND SIGNAL FROM A GROUND STATION.

THE DATA TRANSMITTED ARE ENCLOSED IN A PCM FORMAT AND COMPRISES A SELECTION OF METEOROLOGICAL, BUOY ATTITUDE, HOUSEKEEPING, AND POSITION INFORMATION. THE SYSTEM ALLOWS EXPANSION OF THE NUMBER OF SENSOR INPUTS.

THE SCOMB-1 HAS BEEN TESTED IN THE WATERS SOUTH OF TROMSO USING A SATELLITE TRANSPONDER SIMULATOR AND THE TROMSO SATELLITE TELEMETRY STATION. THE SCOMB-1 HAS ALSO BEEN TESTED TOGETHER WITH THE ATS-3 IN ITS 47-DEGREE-N POSITION. DURING THE LAST TEST THE BUOY WAS LOCATED OUTSIDE BERGEN, AND THE GROUND STATION IN OSLO.

SUBJECT: MARITIME : FFIC CONTROL METEOROLOGY VOICE COMMUNICATIONS

KEYWORDS: NORWAY; ATS-3; BUOYS; OCEANOGRAPHY; METEOROLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 29

DATE OF DOCUMENT/TYPE: 22 FEB 74 / REQUEST FOR USE OF ATS SATELLITE  
TITLE OF DOCUMENT: APPLICATION FOR USE OF ATS-1 SATELLITE TO SUPPORT PROJECT COTINGA  
AUTHOR: SNELL, H H  
SPONSORING AGENCY: AEC  
SATELLITE: ATS-1

EXPERIMENT PERIOD: FEB 74 - MAR 74

OBJECT OF EXPERIMENT: TO LAUNCH TWO OR THREE EXPLOSIVE SHAPED CHARGE BARIUM VAPOR JET PAYLOADS USING ATS-1 IN SUPPORT

ABSTRACT: WE REQUEST COMMUNICATIONS SUPPORT FROM THE ATS-1 SATELLITE FOR PROJECT COTINGA WHICH IS SCHEDULED FOR MARCH 1974. PROJECT COTINGA IS A FOLLOW ON EXPERIMENT TO PROJECT PICAPOSTE WHICH WAS COMPLETED IN THE FALL OF 1972. THREE SEPARATE BARIUM ROCKET LAUNCHES WILL ORIGINATE FROM THE VICINITY OF COLLEGE, ALASKA, WITHIN THE SCHEDULED TIME FRAMES. THE OBJECTIVES OF THE EXPERIMENTS INCLUDE (1) GEOMAGNETIC FIELD LINE TRACING, (2) IONOSPHERIC MODIFICATION, (3) IRON ATOM OXIDATION REACTIONS RESULTING IN INFRARED EMISSION, (4) THERMAL CONDUCTIVITY AT ZERO GRAVITY, AND (5) IONOSPHERIC NOISE MEASUREMENTS.

THE MISSION IS SCHEDULED TO BEGIN IN MARCH 1974. HOWEVER, WE WOULD APPRECIATE INFORMAL PERMISSION TO USE ATS-1 FOR SHORT PERIODS BETWEEN FEBRUARY 15 AND MARCH 5, 1974, FOR CHECKOUT OF GROUND AND AIRCRAFT STATIONS.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; COTINGA; BARIUM VAPOR; MAGNETIC FIELD; ALASKA; MAGNETOSPHERE; PICAPOSTE

UNIVERSITY OF DAYTON ACCESS NUMBER: 30

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DATE OF DOCUMENT/TYPE: OCT 72 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-1 TEST PROGRAM WITH TELSAT CANADA

AUTHOR: KINIK, J

SPONSORING AGENCY: TELSAT CANADA, OTTOWA, ONTARIO

SATELLITE: ATS-1

EXPERIMENT PERIOD: 25 SEP 72 - 29 SEP 72

OBJECT OF EXPERIMENT: TO PROVIDE INFORMATION ABOUT CERTAIN RF PERFORMANCE CHARACTERISTICS OF THE HEAVY ROUTE ANTENNAS AT ALLEN PARK AND LAKE COWICHAN

ABSTRACT:

THE FOLLOWING IS BRIEF SUMMARY OF THE TESTS THAT WERE CONDUCTED DURING THE WEEK OF SEPTEMBER 25 TO 29, 1972 UTILIZING THE NASA ATS-1 SATELLITE.

SEPTEMBER 25: EIRP COMPARISON TEST BETWEEN TWO CO-LOCATED EARTH STATIONS AT ALLEN PARK. THE 98 FOOT HEAVY ROUTE ANTENNA TRANSMIT EIRP AT 6305 MHZ WAS ESTABLISHED USING THE 36 FOOT ANTENNA ASSOCIATED WITH THE TRACKING TELEMETRY AND COMMAND STATION AS A REFERENCE. THE TT&C STATION WAS USED AS A "STANDARD GAIN ANTENNA" IN THIS TEST.

SEPTEMBER 26: SAME TEST REPEATED AS DONE ON SEPTEMBER 25. ALSO A HEAVY ROUTE ANTENNA TRANSMIT PATTERN TEST (MAIN LOBE REGION TO FIRST SIDELOBES ONLY) DONE USING THE TT&C STATION AS A RECEIVER.

SEPTEMBER 27: THREE-WAY EIRP COMPARISON TEST BETWEEN THE HEAVY ROUTE STATIONS AT BOTH ALLAN PARK AND LAKE COWICHAN AND THE TT&C STATION AT ALLAN PARK EXACTLY AS PERFORMED ON SEPTEMBER 25.

SEPTEMBER 29: REPEAT OF TESTS DONE ON SEPTEMBER 27 AND ALSO A TRANSMIT PATTERN TEST ON THE LAKE COWICHAN HEAVY-ROUTE ANTENNA USING THE ALLAN PARK HEAVY ROUTE STATION AS A STANDARD RECEIVER.

SUBJECT: VOICE COMMUNICATIONS

KEYWORDS: TELSAT CANADA; CANADA; ATS-1; ANTENNA

UNIVERSITY OF DAYTON ACCESS NUMBER: 31

DATE OF DOCUMENT/TYPE: DEC 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: VLBI CLOCK SYNCHRONIZATION TESTS PERFORMED VIA THE ATS-1 AND ATS-3 SATELLITES

AUTHOR: RAMASASTRY, J; ROSENBAUM, B; MICHELINI, R D; KUEGLER, G

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER, GREENBELT, MD

SATELLITE: ATS-1; ATS-3 COMMUNICATIONS: C-BAND

EXPERIMENT PERIOD: 10 MAY 71 - 10 JUN 71

OBJECT OF EXPERIMENT: TO DETERMINE THE CLOCK-OFFSET BETWEEN NASA TRACKING STATIONS AT ROSHAN AND MOJAVE

ABSTRACT:

AS PART OF A VLBI EXPERIMENT PERFORMED JOINTLY BY NASA/GODDARD SPACE FLIGHT CENTER AND SMITHSONIAN ASTROPHYSICAL OBSERVATORY DURING MAY 10 - JUNE 10, 1971, THE TWO CLOCKS AT THE ENDS OF THE BASELINE WERE COMPARED DURING EACH DATA RUN. THEREFORE, EACH DAY WHEN DATA WAS TAKEN, THE CLOCKS WERE COMPARED TO DETERMINE THEIR RELATIVE OFFSET. THE GROUND STATIONS WERE THE ATS GROUND STATIONS AT MOJAVE, CALIFORNIA, AND ROSMAN, NORTH CAROLINA. MICROWAVE TRANSMISSIONS AT C-BAND THROUGH DUAL TRANSPONDERS OF THE GEOSTATIONARY SATELLITES ATS-1 AND ATS-3 WERE USED TO MAKE THE COMPARISON. THE CLOCKS WERE DRIVEN BY RUBIDIUM FREQUENCY STANDARDS THAT WERE TRANSPORTED TO THE TWO GROUND STATIONS TO OBTAIN LOCAL OSCILLATOR FREQUENCIES FOR THE SHF TRANSMITTERS AND RECEIVERS.

A MEASURE OF THE TIME DIFFERENCE BETWEEN THE TWO CLOCKS WAS OBTAINED FROM RECORDINGS MADE OF TIME-INTERVAL UNIT (TIU) MEASUREMENTS. THE MEASUREMENTS BY THE TIU WERE MADE EVERY SECOND FOR ONE MINUTE AT THE SAME GREENWICH MEAN TIME (GMT).

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-1; APPLICATION TECHNOLOGY SATELLITE; CLOCK; CLOCK SYNCHRONIZATION; INTERFEROMETRY

TECHNICAL REPORT NUMBER: X-553-71-514

UNIVERSITY OF DAYTON ACCESS NUMBER: 32

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DATE OF DOCUMENT/TYPE: JAN 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: UNITED KINGDOM MARITIME SATELLITE TESTS AUTUMN 1970

AUTHOR: MARCONI COMPANY, POST OFFICE TELECOMMUNICATIONS, UNIVERSITY COLLEGE OF SWANSEA

SPONSORING AGENCY: THE AD-HOC UNITED KINGDOM MARITIME SATELLITE TESTS COMMITTEE

SATELLITE: ATS-3 COMMUNICATIONS: VHF-FM EXPERIMENT PERIOD: AUG 70 - DEC 70

OBJECT OF EXPERIMENT: (1) TO GAIN FIRST-HAND EXPERIENCE IN THE OPERATION OF A MARITIME MOBILE SATELLITE CIRCUIT; (2) TO ACCESS THE EFFECTS OF SPEECH PROCESSING AND NARROW BAND MODULATION TECHNIQUES

ABSTRACT: THIS REPORT SUMMARISES THE RESULTS OF TESTS OF SPEECH, TELEPRINTER, FACSIMILE AND SELECTIVE CALLING TRANSMISSIONS THAT WERE CARRIED OUT VIA THE ATS-3 SATELLITE BETWEEN THE CONTAINER VESSEL 'ATLANTIC CAUSEWAY' AND THE POST OFFICE COAST RADIO STATION AT BURNHAM-ON-SEA, ENGLAND. STATISTICAL RESULTS OF THE SIGNAL-TO-NOISE RATIOS AND SPEECH QUALITY ACHIEVED WITH FM ARE GIVEN FOR DIFFERENT CONDITIONS OF MODULATION AND SPEECH PROCESSING. THE RESULTS OF A LIMITED SERIES OF TESTS USING DOUBLE SIDEBAND SUPPRESSED CARRIER (DSBSC) SYSTEM ARE ALSO INCLUDED. THE RESULTS ARE IN BROAD ACCORD WITH THEORETICAL CONSIDERATIONS, BUT PRACTICAL PROBLEMS OF EQUIPMENT COMPATIBILITY AND INSTALLATION RESTRICTED THE AMOUNT OF DATA THAT COULD BE COLLECTED.

SUBJECT: DATA TRANSMISSION MARITIME TRAFFIC CONTROL VOICE COMMUNICATIONS

KEYWORDS: MARITIME COMMUNICATIONS; ATS-3; VHF; UNITED KINGDOM

UNIVERSITY OF DAYTON ACCESS NUMBER: 33

DATE OF DOCUMENT/TYPE: 1 MAY 74 / PROGRESS REPORT

TITLE OF DOCUMENT: REPORT ON ALASKA USE OF ATS-1 SATELLITE

AUTHOR: BUCK, C L; NORTHROP, C M

SPONSORING AGENCY: STATE OF ALASKA

SATELLITE: ATS-2

EXPERIMENT PERIOD: OCT 72 - JUN 73

OBJECT OF EXPERIMENT: THE GOALS AND OBJECTIVES FOR THE 1972-70 ALASKA ATS-U PROJECT WERE: (1) TO GAIN EXPERIENCE IN THE USE OF MEDICAL, EDUCATIONAL AND INFORMATIONAL INTERCHANGES BETWEEN REMOTE AND URBAN LOCATIONS. (2) TO ISOLATE THE ADVANTAGES OF SATELLITE TELECOMMUNICATIONS. (3) TO DEVELOP IN-HOUSE (IN ALASKA) SATELLITE COMMUNICATIONS COMPETENCE

ABSTRACT:

PUBLIC RADIO - KUAC/NPR INTERCONNECT. DURING THE PERIOD OCTOBER TO DECEMBER 1972, NPR CONTINUED TRANSMITTING ITS PROGRAM, "ALL THINGS CONSIDERED". DURING THIS TIME IT WAS DETERMINED THAT THE DOLBY B UNIT WAS OPTIMIZED, AND TRANSMISSION WAS CARRIED OUT AT FULL POWER. THE 30 KHZ DEVIATION PROVIDED THE ABILITY TO TRANSMIT WIDE BAND 8 KHZ AUDIO.

IN JANUARY OF 1973, NASA APPEARED CONCERNED ABOUT HOW THE KUAC ACTIVITY SEEMED MORE OPERATIONAL THAN EXPERIMENTAL IN NATURE. A REQUEST WAS MADE FOR FURTHER DETAILS FOR CONTINUATION OF THIS EXPERIMENT.

NPR WAS EXPERIENCING, DURING THIS TIME, A GREATER NUMBER OF TECHNICAL PROBLEMS IN TRANSMITTING WIDE BAND VIA THE NIN FACILITIES. THE TECHNICAL QUALITY RECEIVED IN ALASKA WAS SO MARGINAL ABOUT 5% OF THE TIME, THAT THE NPR PROGRAM COULD NOT BE AIRED. MUCH OF THE PROBLEM WAS ATTRIBUTABLE TO RECEPTION DIFFICULTIES CAUSED BY THE SIGNAL STRENGTH IN ALASKA FALLING BELOW FM THRESHOLD. SEVERE TRANSMISSION RELIABILITY PROBLEMS AT NIN WERE ALSO CAUSING THE LOSS OF SERVICE. NEITHER NPR OR NIN HAD THE NECESSARY MANPOWER TO DEDICATE A MAN, ON A DAILY BASIS, TO BE ON HAND DURING THE BROADCAST TO ASSURE PROPER OPERATION.

IT WAS JOINTLY AGREED BY NPR AND THE ALASKA EXPERIMENTER TO TERMINATE TRANSMISSION OF "ALL THINGS CONSIDERED" ON MAY 25, 1973.

BIO-MEDICAL EXPERIMENT. THE ORGANIZATION OF THE MEDICAL PROGRAM DURING THE 1972 TO 1973 PERIOD REMAINED ESSENTIALLY THE SAME AS DURING THE FIRST YEAR WITH THE UNIVERSITY OF ALASKA CONTRACTUALLY OBLIGATED TO THE LISTER HILL NATIONAL CENTER FOR BIO-MEDICAL COMMUNICATIONS TO PERFORM MEDICAL EXPERIMENTS USING ATS-1.

THE MAIN EMPHASIS OF THIS PROJECT WAS THE EXCHANGE OF MEDICAL INFORMATION BETWEEN REMOTE RURAL AND URBAN AREAS. ADDITIONAL DATA WAS OBTAINED IN UNDERSTANDING THE EFFECT OF GOOD COMMUNICATION ON THE CARE OF PATIENT BY THE PHYSICIAN-MEDICAL AIDE SYSTEM.

AN ALARM SYSTEM, AS OUTLINED IN THE 1972 TO 1973 PROPOSAL, TO ALERT USERS TO MEDICAL EMERGENCIES WAS INSTALLED AND TESTED. IT PROVED ONLY PARTIALLY SUITABLE DUE TO THE PECULIARITIES OF THE ATS-1 SATELLITE TRANSPONDER AND THE OPERATIONAL PROCEDURE OF THE SATELLITE. THE ALARM SYSTEM COULD ONLY OPERATE WHEN THE SATELLITE WAS "TURNED ON." AN ADDITIONAL PROBLEM CENTERED AROUND THE HARD LIMITING CHARACTERISTICS OF THE ATS-1 TRANSPONDER. A STATION WITH A 100 WATT TRANSMITTER COULD ACTIVATE THE ALARM SYSTEMS AT THE TANANA HOSPITAL AND THE ALASKA OPERATIONS CENTER AT COLLEGE ONLY WHEN OPERATING NON-ALASKA TRANSMITTERS WERE TRANSMITTING 100 WATTS OR LESS. HOWEVER, THE ALARM SYSTEM WAS USED SUCCESSFULLY IN THAT PHYSICIANS WERE AT THE RADIO IN APPROXIMATELY EIGHT MINUTES FROM ACTIVATION OF THE ALARM.

DURING JULY, AUGUST, AND SEPTEMBER THERE WERE 19 EMERGENCIES. IN MOST OF THESE INSTANCES THE ALARM SYSTEM WAS USED TO ALERT THE DOCTOR AT TANANA OF THE NEED FOR HIS ATTENTION. OF THE 19 CALLS, 9 TOOK PLACE DURING ALASKA EDUCATIONAL TIME AND 7 HAPPENED DURING NON-ALASKA USE TIME.

EMERGENCY SITUATIONS RANGED FROM A 32-YEAR-OLD MAN IN ALLAKAKET SUFFERING A SEIZURE FROM ALCOHOL WITHDRAWAL TO A TEN-YEAR-OLD BOY IN ARCTIC VILLAGE HURT IN A GUN ACCIDENT.

SOME OF THE EMERGENCY CONFERENCES WERE NOT NECESSARILY "MEDICAL" IN NATURE. SEVERAL TIMES ALASKA STATE TROOPERS WERE NOTIFIED OF GUNSHOT WOUNDS OR FATALITIES.

ON SEPTEMBER 26, TRAFFIC BETWEEN TANANA AND VENETIE ABOUT A PATIENT WITH A BROKEN BONE WAS TERMINATED BECAUSE OF A CONFLICT WITH ATS-1 SKYLARK USE.

EMERGENCY CONFERENCES USUALLY RESULT IN EVACUATION OF PATIENTS TO THE HOSPITAL AT TANANA.



PERHAPS THE MOST DRAMATIC EXAMPLE OF THIS TOOK PLACE ON MAY 2, 1973 WHEN A STOVE IN A CABIN IN THE REMOTE VILLAGE OF ANAKTUVIK PASS EXPLODED AND STARTED A FIRE. FIVE PERSONS WERE INJURED IN THE MISHAP. EMERGENCY COUNSELING TOOK 68 MINUTES OF ATS-1 TIME SCHEDULED FOR SOME OTHER USE. EVACUATION WAS ARRANGED AND MORE IMPORTANTLY THE FIVE VICTIMS OF THE EXPLOSION AND SUBSEQUENT FIRE RECEIVED FIRST AID TREATMENT FOR THIRD-DEGREE BURNS AND BROKEN BONES.

THE FIVE PEOPLE WERE EVACUATED TO TANINA AND SOON TRANSFERRED TO BASSETT ARMY HOSPITAL IN FAIRBANKS. ONE, A 5-YEAR-OLD BOY, WAS THEN SENT TO THE ARMY BURN CENTER IN SAN ANTONIO, TEXAS, BUT DIED FROM EFFECTS OF MASSIVE THIRD-DEGREE BURNS SEVERAL WEEKS LATER.

DOCTORS SAID THAT THEY BELIEVED OTHERS OF THE FOUR WHO SURVIVED MIGHT HAVE DIED HAD CORRECT INITIAL TREATMENT NOT OCCURRED.

EDUCATION EXPERIMENT. DURING THE 1972 TO 1973 PERIOD OF OPERATION THE EDUCATIONAL PROJECT CONDUCTED A WIDE RANGE OF TWO-WAY RADIO EXPERIMENTS AIMED AT CLASSROOM AND COMMUNITY AUDIENCES IN REMOTE ALASKAN LOCATIONS. RESPONSIBILITY FOR PROGRAMS DEALING WITH HEALTH, FOR EXAMPLE, WERE Largely SHIFTED TO THE MEDICAL EXPERIMENTERS RATHER THAN REMAINING UNDER THE JURISDICTION OF THE EDUCATIONAL COMPONENT.

THE CLASSROOM UNITS WERE THE MAJOR PROGRAMMING EFFORT OF THE SATELLITE PROJECT STAFF. THESE UNITS WERE DESIGNED AS INSTRUCTIONAL VEHICLES AIMED AT STUDENTS IN THE CLASSROOM. A PARTICULAR UNIT DEALING WITH SOME SUBJECT SUCH AS THE ALASKA FEDERATION OF NATIVES CONVENTION, HEARING PROBLEMS ON CARIBOU HUNTING WOULD BE BROADCAST DAILY THROUGHOUT A GIVEN WEEK UNTIL THE UNIT HAD BEEN COMPLETED.

MOST TEACHERS FELT THAT THE CLASSROOM UNITS WERE THE MOST VALUABLE OF THE FORMAL INSTRUCTIONAL PROGRAMS OFFERED BY THE PROJECT.

EVEN THOUGH SOME TAPED AND/OR PRINTED MATERIAL AND SOMETIMES PHOTOGRAPHS WERE SENT TO THE REMOTE SCHOOLS PRIOR TO THE BROADCAST OF THE PROGRAM, THERE WAS CONSENSUS AMONG THE TEACHERS INVOLVED THAT MORE SOPHISTICATED ADVANCED PREPARATION MATERIALS WERE NEEDED.

ONE DISAPPOINTING ASPECT OF THIS SERIES WAS THE APPARENT LACK OF INTEREST BY NATIVE CHILDREN IN DIFFERENT ALASKAN NATIVE CULTURES. GENERALLY, LISTENERS ONLY RESPONDED WELL TO PROGRAMS DEALING WITH THEIR OWN CULTURE.

ANOTHER AREA OF CLASSROOM PROGRAMMING WAS THE EXCHANGE EXPERIMENT. THERE WAS SOME RELUCTANCE ON THE PART OF ALASKA SCHOOLS TO PARTICIPATE IN THIS SERIES OF EXCHANGES BUT THREE OR FOUR DID GET INVOLVED AND SEVERAL OTHERS LISTENED AND WERE REPORTED BY THE TEACHERS AS ENJOYING THE SESSIONS. OPERATIONAL DIFFICULTIES PLAGUED THIS SERIES.

LATER, AS ALASKA BECAME INVOLVED IN THE PEACESAT PROGRAM, CLASSROOM EXCHANGES WITH LUNALILO ELEMENTARY SCHOOL IN HONOLULU WERE ARRANGED BUT THE END OF THE SCHOOL YEAR PUT A STOP TO ANY FURTHER EXCHANGES.

## SUBJECT:

BROADCASTING  
VOICE COMMUNICATIONS

EDUCATIONAL APPLICATIONS

MEDICAL/HEALTH APPLICATIONS

## KEYWORDS:

ALASKA; ATS-1; EDUCATION; BROADCASTING; BIOMEDICAL

UNIVERSITY OF DAYTON ACCESS NUMBER: 34

DATE OF DOCUMENT/TYPE: JUL 74 / PROGRESS REPORT

TITLE OF DOCUMENT: PROGRESS REPORT: PRECISE TIME DISSEMINATION EXPERIMENT

AUTHOR: CHI, A F

SPONSORING AGENCY: NETWORK ENGINEERING DIVISION, NASA RESEARCH AND APPLIED PHYSICS LABORATORY, JOHNS HOPKINS UNIVERSITY

SATELLITE: ATS-1 AND ATS-3 COMMUNICATIONS: C-BAND EXPERIMENT PERIOD: APR 74 - DEC 74

OBJECT OF EXPERIMENT: TO DETERMINE THE ACCURACY WITH WHICH TIME CAN BE TRANSFERRED BETWEEN TWO EARTHBOUND STATIONS VIA SYNCHRONOUS SATELLITE

ABSTRACT:

ONE STATION TEST RESULTS  
PRELIMINARY RESULTS OF THE ONE STATION TEST OF PRECISE TIME TRANSFER EXPERIMENT USING THE ATS-1 AND A MORE DETAILED ANALYSIS TOGETHER WITH SOME RECOMMENDATIONS FOR THE TWO STATION TEST ARE GIVEN IN THIS REPORT.

SLAVE STATION RF TERMINAL  
THE C-BAND TERMINAL FOR THE SLAVE STATION HAS BEEN DESIGNED. EVERY EFFORT IS BEING MADE TO PUSH THE DELIVERY DATE TO LATE OCTOBER OR EARLY NOVEMBER TO MEET THE SCHEDULED CAS TEST DATE IN NAFEC, ATLANTIC CITY, NEW JERSEY.

TWO STATION TEST PLAN  
TWO STATION TEST PLAN IS BEING PREPARED AS THE EQUIPMENT IS BEING INTEGRATED.

FREQUENCY CLEARANCE FOR TRANSMISSION OF C-BAND SIGNALS AT THE SLAVE STATION  
MR. VINCENT LUCIANI OF NAFEC, FAA, HAS REQUESTED VERBALLY IN FEBRUARY 1974 TO LOOK AFTER THE PROBLEMS OF FREQUENCY CLEARANCE FOR CONDUCTING THE TWO STATION TEST AT NAFEC OR ITS ALTERNATE LOCATION.

SUBJECT: AIR TRAFFIC CONTROL DATA TRANSMISSION MARITIME TRAFFIC CONTROL  
NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 35

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPE: AUG 73

/ TECHNICAL REPORT

TITLE OF DOCUMENT: SATELLITE COMMUNICATION EXPERIMENTS VIA ATS-1

AUTHOR: KASHIMA EARTH STATION

SPONSORING AGENCY: RADIO RESEARCH LABORATORIES, MINISTRY OF POSTS AND TELECOMMUNICATIONS, JAPAN

SATELLITE: ATS-1

COMMUNICATIONS: SHF

EXPERIMENT PERIOD: APR 70 - AUG 73

ABSTRACT:

EXPERIMENTS MADE AT KASHIMA STATION ARE LISTED AND SUMMARIZED BRIEFLY IN THIS REPORT. ALL THE EXPERIMENTS WERE CARRIED OUT BY USING THE 26 METER PARABOLOIDAL ANTENNA FACILITIES AND THE SHF TRANSPONDER NUMBER 1 OF ATS-1 TILL FEBRUARY 1972, AND THEN THE TRANSPONDER NUMBER 2 AFTER MARCH 1972. TITLES OF EXPERIMENTS ARE AS FOLLOWS: (1) DATA PROCESSING OF SSCC PICTURE; (2) TRANSMISSION TEST VIA ATS-1, OF THE SEQUENTIAL TIME-DIVISION MULTIPLEXING SYSTEM OF VIDEO AND SOUND SIGNALS; (3) TRANSMISSION EXPERIMENT VIA ATS-1 OF A COLOR TV SIGNAL MULTIPLEXED WITH PCM SOUND SIGNALS; (4) SSPA COMMUNICATION EXPERIMENT VIA ATS-1; (5) BASIC CHARACTERISTICS OF SATELLITE REPEATER FOR MULTIPLE INPUT SIGNALS; (6) TRANSMISSION EXPERIMENTS VIA ATS-1 OF THE NARROW BAND DIGITAL TONE RANGING AND DATA TRANSMISSION SYSTEM FOR NAVIGATION SATELLITE; (7) SSRR EXPERIMENT VIA ATS-1.

SUBJECT:

BROADCASTING

DATA TRANSMISSION

METEOROLOGY

KEYWORDS:

JAPAN: ATS-1; DATA PROCESSING; TELEVISION; COLOR TELEVISION; MULTIPLEXING; NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 36

DATE OF DOCUMENT/TYPE: DEC 72 / TECHNICAL REPORT  
TITLE OF DOCUMENT: FINAL REPORT ON PHASE 3 ATS RANGING AND POSITION FIXING EXPERIMENT  
AUTHOR: ANDERSON, R E  
SPONSORING AGENCY: CORPORATE RESEARCH AND DEVELOPMENT, GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK  
SATELLITE: ATS-5 COMMUNICATIONS: VHF, L-BAND EXPERIMENT PERIOD: 19 MAR 71 - 01 DEC 72

OBJECT OF EXPERIMENT: TO BUILD AN AUTOMATIC TONE-CODE RANGING TRANSPONDER THAT RECEIVES A TONE-CODE INTERROGATION AT VHF AND RESPONDS COHERENTLY AT VHF AND L-BAND  
MEASURE PROPAGATION EFFECTS AT VHF AND L-BAND FOR A DIRECT COMPARISON OF THE EFFECTS ON RANGING PRECISION AND ACCURACY  
DETERMINE RELATIVE RELIABILITY OF THE COMMUNICATION LINKS  
BUILD AND TEST AN L-BAND SOLID-STATE POWER AMPLIFIER  
BUILD AND TEST AN L-BAND RECEIVER

ABSTRACT: PHASE 3 EXTENDED THE WORK TO L-BAND USING THE ATS-5 SATELLITE. AN AUTOMATIC TONE-CODE RANGING TRANSPONDER WAS DESIGNED, CONSTRUCTED, AND USED TO COMPARE RANGING MEASUREMENTS AND COMMUNICATIONS RELIABILITY AT VHF AND L-BAND, AND TO MEASURE THE PERFORMANCE OF THE TONE-CODE TECHNIQUE AT L-BAND. A CONTRIBUTION TO PRACTICAL IMPLEMENTATION OF L-BAND WAS MADE BY THE DEVELOPMENT OF A SOLID-STATE RF POWER AMPLIFIER AND RECEIVER. THE TRANSPONDER IS EQUIPPED FOR VOICE COMMUNICATIONS THROUGH THE VHF SATELLITE. VOICE TRANSMISSIONS, LIKE THE TONE-CODE SIGNALS, EMPLOY NARROW BAND FREQUENCY MODULATION.

THE L-BAND/VHF AUTOMATIC TRANSPONDER WAS USED IN EXPERIMENTS WITH THE ATS-5 AND ATS-3 SATELLITES IN JANUARY AND EARLY FEBRUARY AND FROM JUNE THROUGH NOVEMBER OF 1972. THE L-BAND RECEIVER OF THE ATS-5 SATELLITE DID NOT FUNCTION BETWEEN FEBRUARY AND JUNE 1972.

CONCLUSION: RESULTS OF THE RANGING EXPERIMENTS CONFIRMED THAT RANGING RESOLUTION MEASURED IN TENS OF HUNDREDS OF FEET MAY BE ACHIEVED AT VHF AND L-BAND WITHIN THE RADIO FREQUENCY BANDWIDTHS USED FOR COMMUNICATIONS WITH SIMPLE, INEXPENSIVE, AUTOMATIC EQUIPMENT. THE RANGING SIGNALS CAN BE COMPATIBLE WITH COMMUNICATIONS AND THE RANGE MEASUREMENTS CAN BE ACCOMPLISHED IN A TIME THAT IS NEGLIGIBLY SHORT COMPARED TO THE SIGNAL DURATIONS USED FOR COMMUNICATIONS.

THE COMPARISON OF VHF AND L-BAND RANGING WAS IMPAIRED BY THE NECESSITY FOR RANGING THROUGH TWO SEPARATE SATELLITES WHOSE POSITIONS COULD NOT BE KNOWN EXACTLY. UNCERTAINTY IN THE SATELLITE POSITIONS WAS LARGER THAN THE DIFFERENTIAL DELAYS DUE TO PROPAGATION EFFECTS IN THE IONOSPHERE, AND THEREFORE RANGE ERRORS DUE TO PROPAGATION DELAY IN THE IONOSPHERE COULD NOT BE COMPLETELY SEPARATED FROM APPARENT RANGE ERRORS DUE TO SATELLITE POSITION PREDICTION UNCERTAINTY. A COMPARISON OF THE DIURNAL CHANGES IN PROPAGATION DELAY THROUGH THE IONOSPHERE WAS OBTAINED BY RANGING CONTINUOUSLY AT BOTH FREQUENCIES THROUGHOUT A TWENTY-FOUR HOUR PERIOD.

PHASE 3 OF THE RANGING AND POSITION FIXING EXPERIMENTS HAS RESULTED IN THE DEVELOPMENT OF A UNIQUE INSTRUMENT FOR IONOSPHERE PROPAGATION MEASUREMENTS AND FOR THE COMPARISON OF RANGING AND POSITION FIXING EXPERIMENTS AT VHF AND L-BAND AS WELL AS FOR THE DEVELOPMENT OF TECHNIQUES FOR THE APPLICATIONS OF SATELLITES TO COMMUNICATIONS, POSITION SURVEILLANCE AND NAVIGATION.

SUBJECT: NAVIGATION  
KEYWORDS: ATS-5; RANGING; POSITION FIXING; L-BAND; TONE-CODE

TECHNICAL REPORT NUMBER: SPD-73-062

UNIVERSITY OF DAYTON ACCESS NUMBER: 37

DATE OF DOCUMENT/TYPE: NOV 70

/ TECHNICAL REPORT

TITLE OF DOCUMENT: TRANSCONTINENTAL INTERCONNECTION EXPERIMENT (FINAL REPORT)

AUTHOR: ROTH, E J

SPONSORING AGENCY: CORPORATION FOR PUBLIC BROADCASTING, WASHINGTON, D.C.

SATELLITE: ATS-1; ATS-3 COMMUNICATIONS: TV-VIDEO AND COLOR

EXPERIMENT PERIOD: 4 JAN 70 - 26 MAR 70

OBJECT OF EXPERIMENT: A PRINCIPAL OBJECTIVE OF THE TRANSCONTINENTAL INTERCONNECTION EXPERIMENT (TIE) WAS TO EVALUATE AND OPTIMIZE THE PERFORMANCE OF A TRANSCONTINENTAL SATELLITE LINK FOR VIDEO INTERCONNECTION - BOTH AS AN INDEPENDENT OPERATION AND AS PART OF A COMPOSITE SERVICE INCLUDING RADIO RELAY AND LOCAL DISTRIBUTION LINKS. A SECONDARY OBJECTIVE WAS TO EVALUATE THE FEASIBILITY OF INTERFERENCE-FREE TELEVISION RECEPTION FROM SATELLITES BY MEDIUM-SIZE RECEIVING STATIONS IN AN URBAN ENVIRONMENT CONTAINING RADIO RELAY FACILITIES USING THE SAME FREQUENCY BANDS.

#### ABSTRACT:

TO ACHIEVE THE FIRST OBJECTIVE, A SERIES OF TESTS WERE SCHEDULED USING THE NASA EARTH STATIONS AT ROCKWELL, NORTH CAROLINA AND MOJAVE, CALIFORNIA PLUS THE ATS-3 EXPERIMENTAL SATELLITE. THE TWO EARTH STATIONS WERE CONNECTED WITH THE PUBLIC TELEVISION NETWORK PROVIDED BY AT&T VIA RADIO RELAY LINKS AND OTHER TERRESTRIAL FACILITIES. TO ACHIEVE THE SECOND OBJECTIVE, A BRIEF PERIOD OF TESTING WAS SCHEDULED USING THE HUGHES AIRCRAFT COMPANY ROOFTOP TERMINAL IN EL SEGUNDO, CALIFORNIA (ADJACENT TO THE LOS ANGELES INTERNATIONAL AIRPORT).

IN ALL OF THESE TESTS, IT WAS ANTICIPATED THAT VARIOUS OPERATING PARAMETERS (E.G. MODULATION INDEX, FILTER CHARACTERISTICS, VIDEO WAVEFORM CHARACTERISTICS) WOULD BE ALTERED TO PROVIDE THE BEST PERFORMANCE POSSIBLE WITHIN THE BASIC LIMITATIONS OF AVAILABLE HARDWARE, SATELLITE POWER, ETC.

#### CONCLUSIONS:

DESPITE THE MANY EXTRANEUS DIFFICULTIES ENCOUNTERED DURING THE TIE PROJECT, A NUMBER OF IMPORTANT ENGINEERING OBJECTIVES WERE ACHIEVED. FIRST, IT WAS CLEARLY DEMONSTRATED TO THE SATISFACTION OF BOTH VIDEO ENGINEERS AND VIEWERS THAT HIGH-QUALITY, RELIABLE TELEVISION TRANSMISSION VIA SATELLITE COULD BE PROVIDED ON A ROUTINE BASIS. AT THE SAME TIME, IT WAS DEMONSTRATED THAT THE MAINTENANCE OF HIGH-QUALITY VIDEO SERVICE VIA RADIO RELAY LINKS IS A DEMANDING ASSIGNMENT REQUIRING FULL-TIME ATTENTION.

ANOTHER SIGNIFICANT FINDING WAS THAT EVEN A RELATIVELY LOW-POWERED SATELLITE SUCH AS ATS-3 COULD PRODUCE ACCEPTABLE QUALITY VIDEO INTO MODEST EARTH STATIONS HAVING 30 TO 40 FOOT ANTENNAS.

FINALLY, THE DEMONSTRATION OF INTERFERENCE-FREE RECEPTION AT THE HUGHES ROOFTOP TERMINAL IN THE LOS ANGELES BASIN OFFERS CONSIDERABLE ENCOURAGEMENT WITH RESPECT TO THE FEASIBILITY OF SITING FUTURE RECEIVE-ONLY EARTH STATIONS IN THE IMMEDIATE VICINITY OF THE BROADCAST STATION, EVEN IN A CONGESTED URBAN RADIO RELAY ENVIRONMENT.

#### SUBJECT:

BROADCASTING

#### KEYWORDS:

VIDEO LINK; TELEVISION; ANTENNA; BROADCASTING; SATELLITE LINK; TELEVISION

DATE OF DOCUMENT/TYPE: FEB 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: SYSTEM 6219/ATS-5 SIGNAL DEMONSTRATION TEST (FINAL TECHNICAL REPORT)

AUTHOR: BARULA, J D; MANAS, O J; WESTWOOD, D H

SPONSORING AGENCY: SAMSO/SPACE AND MISSILE SYSTEMS ORGANIZATION, LOS ANGELES, CALIFORNIA

SATELLITE: ATS-5 COMMUNICATIONS: C-BAND, L-BAND EXPERIMENT PERIOD: OCT 70 - JAN 71

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE ABILITY OF A RECEIVER EQUIPMENT TO PRODUCE ACCURATE AND PRECISE RANGING DATA USING THE NASA ATS-5 AND PROVIDE DATA FOR IONOSPHERIC PROPAGATION DELAY EVALUATION AT L-BAND.

ABSTRACT: A TEST EXPERIMENT HAS BEEN ACCOMPLISHED IN WHICH L- AND C-BAND RANGE MEASUREMENTS HAVE BEEN MADE BETWEEN A FIXED GROUND STATION AT MOJAVE, CALIFORNIA, AND THE ATS-5 SATELLITE ON-ORBIT. THESE TESTS COVERED A THREE-MONTH PERIOD FROM OCTOBER 1970 TO JANUARY 1971 AND PRODUCED COMPARATIVE DATA FOR USE IN EVALUATING THE IONOSPHERIC PROPAGATION EFFECTS AT L-BAND FREQUENCIES. THE ATS-5 SATELLITE IS SPINNING AND HAS A RECEPTION WINDOW OF APPROXIMATELY 50 MILLISECONDS WITH EACH ROTATION. THE TEST INSTRUMENTATION ACQUIRED THE SATELLITE SIGNAL WITHIN A FEW MILLISECONDS AT THE BEGINNING OF EACH RECEPTION AND PERFORMED BOTH AN L-BAND AND A C-BAND MEASUREMENT DURING THE BURST.

SUBJECT: AIR TRAFFIC CONTROL AIRCRAFT COMMUNICATIONS BROADCASTING  
METEOROLOGY NAVIGATION ATMOSPHERIC

KEYWORDS: ATS-5; C-BAND; L-BAND; RANGING; IONOSPHERE; IONOSPHERIC PROPAGATION

TECHNICAL REPORT NUMBER: SAMSO TR 71-35 UNIVERSITY OF DAYTON ACCESS NUMBER: 39

DATE OF DOCUMENT/TYPES: MAR 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: MEDICAL TELECOMMUNICATIONS EXPERIMENTS FOR ALASKA VIA SATELLITE: A SUMMARY OF HARDWARE EXPERIMENTS AND A CATALOG OF TERMINAL EQUIPMENT

AUTHOR: ELLAN, J S

SPONSORING AGENCY: STANFORD UNIVERSITY, STANFORD, CALIFORNIA

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: FEB 71 - DEC 72

OBJECT OF EXPERIMENTS: TO DEMONSTRATE THAT REASONABLE INEXPENSIVE EQUIPMENT CAN WORK IN THE SENSE OF PROVIDING A HIGH ENOUGH TECHNICAL QUALITY TO BE USEFUL, MEDICALLY, AS EQUIPMENT EXPERIMENTS. THEY SEEK TO DEMONSTRATE THE FEASIBILITY OF (1) STATE-OF-THE-ART BASEBAND TERMINAL HARDWARE, (2) INTERFACE HARDWARE, AND (3) VOICE-GRADE CIRCUITS VIA SATELLITE--SOMETIMES USED IN TANDUM WITH STANDARD TELEPHONE CIRCUITS.

#### ABSTRACT:

##### C. THE EXPERIMENTERS AND THE EXPERIMENTS

FIVE INSTITUTIONS HAVE BEEN INVOLVED IN PLANNING AND IN CONDUCTING THE HARDWARE EXPERIMENTS: THE LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS IN BETHESDA, MARYLAND (BETHESDA); THE UNIVERSITY OF WISCONSIN IN MADISON (WISCONSIN); STANFORD UNIVERSITY IN PALO ALTO, CALIFORNIA (STANFORD); THE UNIVERSITY OF WASHINGTON IN SEATTLE, WASHINGTON (WASHINGTON); THE UNIVERSITY OF ALASKA IN COLLEGE (ALASKA) (COLLEGE).

EACH LOCATION HAS ITS OWN VHF COMMUNICATIONS TERMINAL, CAPABLE OF TRANSMITTING AND RECEIVING SIGNALS RELAYED BY THE ATS-1 SATELLITE POSITIONED ABOVE THE EQUATOR SOUTH OF HAWAII.

ALL FIVE INSTITUTIONS HAVE PARTICIPATED IN FORMULATING THE EXPERIMENTS: MOST HAVE CONTRIBUTED URGENT HARDWARE DESIGNS AND SPECIAL SOLUTIONS TO SYSTEM PROBLEMS. A GIVEN EXPERIMENT, ON THE OTHER HAND, HAS USUALLY BEEN THE RESPONSIBILITY OF ONE PARTICIPANT, OR OF SEVERAL IN COLLABORATION. THE HARDWARE EXPERIMENTS AND THEIR PRINCIPAL COLLABORATORS ARE: (1) DUPLEX VOICE: SIMULTANEOUS TWO-WAY CONVERSATION (STANFORD); (2) FOUR ONE-WAY TRANSMISSION OF ELECTROCARDIOGRAMS USING INEXPENSIVE SENSORS (STANFORD); (3) FACSIMILE ONE-WAY TRANSMISSION OF DIAGRAMS, PHOTOGRAPHS, AND OTHER GRAPHIC MATERIAL, PRODUCING A PICTURE AT THE RECEIVER THAT IS OF HIGH ENOUGH QUALITY TO BE MEDICALLY USEFUL (STANFORD); (4) ELECTROCARDIOGRAMS HANDWRITING AND DRAWINGS, TELECOMMUNICATED AS THEY ARE PRODUCED ALONE, AND IN CONJUNCTION WITH VOICE, LIVE AND RECORDED (WISCONSIN); (5) TELETYPE: SIMPLY AND DUPLEX OPERATION OF WORD COPY MACHINES FOR GENERAL MESSAGES AND FOR REMOTE COMPUTER ACCESS (STANFORD; WASHINGTON); (6) REMOTE X-RAYS: ONE-WAY TRANSMISSION OF X-RAY INFORMATION FOR MEDICAL INTERPRETATION AT THE RECEIVER (WISCONSIN); (7) SLOW-SCAN TELEVISION: TELEVIEWED IMAGES SENT OVER VOICE CIRCUITS (WISCONSIN); (8) CHATTING: ONE-WAY TRANSMISSION OF HEARTBEAT, BREATHING, ETC. A TELE-STETHOSCOPE (WASHINGTON); (9) UNATTENDED RECEPTION: AUTOMATIC VOICE RECORDING AND OTHER AUTOMATED RECEPTION DEVICES (STANFORD).

THE PARTICULAR TECHNOLOGIES JUST LISTED ARE CONSIDERED TO BE RELEVANT TO HEALTH CARE DELIVERY AND HEALTH EDUCATION IN ALASKA. IN AN INITIAL CONFERENCE ON JUNE 17, 1971, MOST OF THE TECHNOLOGIES INVOLVED IN THESE EXPERIMENTS WERE DISCUSSED IN TERMS OF THEIR RELEVANCE TO ALASKA, THEIR STATE OF DEVELOPMENT, THEIR FEASIBLE COST, AND THEIR APPROPRIATENESS FOR EVENTUAL ALASKAN FIELD TEST. FOUR KINDS OF ALASKAN LINKS WERE CONSIDERED: MEDICAL /IDE TO PHYSICIAN (TYPICAL OF LINKS BETWEEN HEALTH CARE PROVIDERS IN THE VILLAGES AND PHYSICIANS IN SERVICE UNIT CLINICS OR FIELD HOSPITALS); PARAPROFESSIONAL TO PHYSICIAN (TYPICAL FOR ALASKA BUT AN EXAMPLE MIGHT BE LINKS BETWEEN PUBLIC HEALTH NURSES AND PHYSICIANS); PHYSICIAN TO PHYSICIAN (BETWEEN FIELD HOSPITALS AND MAJOR ALASKAN REFERRAL CENTERS); AND MEDICAL CENTER TO MEDICAL CENTER (BETWEEN ALASKAN REFERRAL CENTERS AND OTHER U.S. CENTERS FOR SPECIALIST CONSULTATIONS).

THIS SUMMARY OF EXPERIMENTS AND HARDWARE SERVES SEVERAL PURPOSES. IT REVIEWS THE RESULTS OF ALL THE EXPERIMENTS COMPREHENSIVELY, BOTH FOR THE PARTICIPANTS AND FOR DECISIONMAKERS INVOLVED IN PLANNING FUTURE PHASES. IT OUTLINES THE EXPERIMENTAL METHODOLOGIES AND HARDWARE CONFIGURATIONS USED SO THAT THE EXPERIMENTS CAN BE REPEATED BY OTHERS. IT DESCRIBES THE MAIN FEATURES AND THE MOST TROUBLESOME SHORTCOMINGS OF THE ATS-1 SATELLITE AND OF THE GROUND STATIONS INVOLVED. IN THE HOPES THAT ANY FUTURE EXPERIMENTS OR ADDITIONAL PHASES INVOLVING THIS VHF SYSTEM MIGHT BENEFIT. FINALLY, THE COST INFORMATION CATALOGUED IN THIS REPORT, ALTHOUGH OF LIMITED TIME-VALUE AND COMPREHENSIVENESS, NOW

LD BE OF VALUE IN MAKING COST-BENEFIT COMPARISONS WITH OTHER TRANSMISSION SYSTEMS, AND MAY FACILITATE DECISIONS INVOLVING PARTICULAR HARDWARE COMPONENTS.

IN GENERAL, THE HARDWARE EXPERIMENTS WERE SUCCESSFUL, ALTHOUGH NOT ALL OF THE TARGET TECHNOLOGIES WERE PROVEN OUT ADEQUATELY. MOST OF THOSE CONSIDERED TO BE PREFERRED FOR LATER IMPLEMENTATION WERE SHOWN TO BE TECHNICALLY AND ECONOMICALLY FEASIBLE. NONE OF THE EXPERIMENTS WORKED WELL, HOWEVER, UNDER EXTREMELY NOISY CONDITIONS OR DURING SEVERE MAGNETIC STORMS. "HALF-POWER" ATS-1 OPERATION OBTAINED SOME RESULTS, BUT NOT ALL.

THE MOST SUCCESSFUL EXPERIMENTS WERE THOSE CONSIDERED TO BE MOST USEFUL FOR LATER PROJECT PHASES. IN PARTICULAR, DUPLEX VOICE, ECG, AND FACSIMILE ALL WORKED WELL OVER THE SATELLITE LINK, UNDER NORMAL NOISE CONDITIONS.

THE ELECTROCARDIOGRAPH EXPERIMENT, ALTHOUGH MORE PROBLEMATIC, WAS ALSO SUCCESSFUL, BUT ONLY IN SIMPLEX MODE.

EXPERIMENTS WITH MESSAGE AND COMPUTER-ACCESS TELETYPE WERE SUCCESSFUL--BOTH IN SIMPLEX AND DUPLEX MODES. ALTHOUGH DUPLEX OPERATION REQUIRED FULL SATELLITE POWER, AND A QUIET SKY.

SLOW-SCAN TELEVISION PROVED TO BE SUCCESSFUL DURING HARDWARE SIMULATIONS AT SIGNAL-TO-NOISE RATIOS (SNR'S) GREATER THAN 30-35DB, BUT NOT OVER THE ATS-1 LINK WHICH PROVIDED SNR'S OF ONLY 10DB. SLOW-SCAN TRANSMISSION TESTED VIA ATS-1 WAS JUDGED MEDICALLY USELESS.

THE REMOTE X-RAY, CHEST SOUNDS, AND UNATTENDED RECEPTION EXPERIMENTS WERE NOT FULLY EVALUATED OVER ATS-1.

SUBJECT:

MEDICAL/HEALTH APPLICATIONS

KEYWORDS:

MEDICAL COMMUNICATIONS; ALASKA; LISTER HILL; ATS-1; VHF

UNIVERSITY OF DAYTON ACCESS NUMBER: 40

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DATE OF DOCUMENT/TITLE: FEB 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: SATELLITE COMMUNICATIONS DURING OPERATION PICAPOSTE

AUTHOR: TELCOM, INC.

SPONSORING AGENCY: TELCOM, INC., LAS VEGAS, NEVADA

SATELLITE: ATS-1 COMMUNICATIONS: VHF, VHF-FM EXPERIMENT PERIOD: AUG 72 - NOV 72

OBJECT OF EXPERIMENT: TO TEST THE EFFECTIVENESS OF A SATELLITE LINK IN MAINTAINING VOICE COMMUNICATIONS BETWEEN TWO AIRCRAFT (A/C) AND BETWEEN AN A/C AND DIFFERENT GROUND STATIONS IN OPPOSITE HEMISPHERES.

## ABSTRACT:

COMMUNICATION EXPERIMENTS USING THE NASA APPLICATION TECHNOLOGY SATELLITE (ATS-1) IN A TWO FREQUENCY HALF DUPLEX MODE WERE CONDUCTED DURING AUGUST - NOVEMBER 1972. THESE EXPERIMENTS WERE DESIGNED TO TEST THE EFFECTIVENESS OF A SATELLITE LINK IN MAINTAINING VOICE COMMUNICATIONS BETWEEN TWO AIRCRAFT (A/C) AND BETWEEN AN A/C AND DIFFERENT GROUND STATIONS IN OPPOSITE HEMISPHERES.

PICAPOSTE IS THE NAME ADOPTED BY THE LOS ALAMOS SCIENTIFIC LABORATORY (LASL) FOR THE PROGRAM OF LASL SPONSORED ROCKETS WHICH WERE LAUNCHED FROM THE UNIVERSITY OF ALASKA POKER FLAT ROCKET RANGE AND THE AED KAHAI TEST FACILITY IN HAWAII. OF THE SEVEN EVENTS CONDUCTED, FOUR (THE GEO-MAGNETIC FIELD LINE EXPERIMENTS) WERE COSPONSORED BY THE UNIVERSITY OF ALASKA GEOPHYSICAL INSTITUTE, AND ONE (A NEUTRON ACCELERATOR EXPERIMENT) WAS COSPONSORED BY NASA AND THE SANDIA LABORATORIES. BRIEFLY, THE OBJECTIVES OF THE EXPERIMENTS INCLUDE (1) GEOMAGNETIC FIELD LINE TRACING, (2) IONOSPHERIC MODIFICATION, (3) IRON ATOM OXIDATION REACTIONS RESULTING IN INFRARED EMISSION, (4) THERMAL CONDUCTIVITY AT 70-80 GRAVITY, AND (5) IONOSPHERIC NOISE.

SEVEN DIFFERENT TYPES OF COMMUNICATION WERE USED TO ACCOMPLISH THE VARIOUS ASPECTS OF THE PICAPOSTE OPERATION. THESE WERE (1) VHF-FM SATELLITE RELAY RADIO, (2) VHF-FM AIR/GROUND RADIO, AND GROUND/GROUND RADIO, (3) HF SINGLE SIDE BAND RADIO, (4) TELEX MESSAGES, (5) TWX MESSAGES, (6) TELEPHONE, AND (7) OTHER COMMERCIAL AND MILITARY SYSTEMS.

THE TWO PRINCIPAL MEANS OF COMMUNICATION WERE THE ATS-1 SATELLITE RELAY RADIO AND HF SINGLE SIDE BAND RADIO. THE SATELLITE RELAY RADIO WAS THE PRIMARY CHANNEL AT THE TIME OF A ROCKET LAUNCH WHENEVER SATELLITE TIME WAS AVAILABLE. HOWEVER, SINCE THE SATELLITE CHANNEL WAS NOT AVAILABLE AT ALL 4 HOURS OF THE DAY, HF SINGLE SIDE BAND RADIO THEN BECAME THE PRIMARY COMMUNICATION CHANNEL BETWEEN THE TWO. DURING THE PERIODS OF SATELLITE USE, THE HF SINGLE SIDE BAND RADIO WAS USED AS THE BACKUP TO THE SATELLITE RELAY RADIO.

## CONCLUSION:

IN CONCLUSION, IT CAN BE STATED THAT ALL PHASES OF SATELLITE GROUND COMMUNICATIONS WERE SATISFACTORY. THE ATS-1 SATELLITE PERFORMED AS EXPECTED. THE COORDINATION EFFORTS OF THE ATS OPERATIONS CONTROL CENTER (ATSOCC) WERE COMPETENTLY PERFORMED AND VERY HELPFUL.

THE GROUND STATION EQUIPMENT PERFORMED PROPERLY AND WITHIN PREDICTED PARAMETERS. THE GROUND STATION EQUIPMENT WAS PHYSICALLY OVERSIZED FOR TRANSPORTABLE APPLICATION. BASED ON THE FINAL EXPERIMENTAL RESULTS, IT IS RECOMMENDED THAT THE DESIGN BE IMPROVED BY USING A 100 WATT, SOLID STATE RADIO WHICH WEIGHS MUCH LESS THAN THE 350 POUND BASE STATION USED FOR THIS OPERATION.

THE AIRCRAFT/SATELLITE COMMUNICATION SYSTEM WAS MARGINAL. OPERATIONAL RESULTS INDICATE THAT A PERFORMANCE UPGRADE SHOULD BE IMPLEMENTED. PRIOR TO ENGINEERING A SYSTEM DESIGN, IT IS RECOMMENDED THAT A TEST PROGRAM BE EFFECTED TO PINPOINT SYSTEM PROBLEM AREAS AND HARDWARE DEFICIENCIES.

KEYWORDS:

PICAPOSTE; ATS-1; COMMUNICATIONS; AIRCRAFT

TECHNICAL REPORT NUMBER: TNR-323-378

UNIVERSITY OF DAYTON ACCESS NUMBER: 42

DATE OF DOCUMENT/TYPE: JUL-DEC 1973 / PROGRESS REPORT  
TITLE OF DOCUMENT: SUMMARIES OF USE OF ATS-1 FOR MEDICAL PURPOSES  
AUTHOR: STANLEY, G.M.  
SPONSORING AGENCY: GEOPHYSICAL INSTITUTE, UNIVERSITY OF ALASKA, COLLEGE, ALASKA  
SATELLITE: ATS-1  
ABSTRACT: THESE MONTHLY SUMMARY SHEETS OF SATELLITE USAGE, NUMBER OF PATIENTS INVOLVED, TIME SPENT AND SUPPLIES ORDERED ARE GIVEN BY VILLAGE BY MONTH. EMERGENCIES OCCURRING DURING A GIVEN MONTH ARE ALSO LISTED.  
SUBJECT: MEDICAL/HEALTH APPLICATIONS  
KEYWORDS: ATS-1; SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 43

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DATE OF DOCUMENT/TYPE: JUN 72 / TECHNICAL REPORT

TITLE OF DOCUMENT: AN EXPERIMENTAL STUDY OF DIGITAL DATA TRANSMISSION USING ATS-SATELLITE VHF TRANSPONDERS: VHF SEEK

AUTHOR: KLEPPE, J A

SPONSORING AGENCY: SIERRA RESEARCH ENVIRONMENTAL LABORATORY, BOULDER, COLORADO

SATELLITE: ATS-1: ATS-3

EXPERIMENT PERIOD: 1970

OBJECT OF EXPERIMENT: TO TEST THE EFFECTIVENESS OF TRANSMISSION OF HURRICANE WEATHER RADAR DATA

ABSTRACT: THIS DOCUMENT GIVES A GENERAL DESCRIPTION OF THE ATS-1 AND ATS-3 VHF CAPABILITY. ALSO PRESENTED ARE RESULTS OF TESTS INVOLVING THE TRANSMISSION OF DIGITAL DATA. ERRORS IN TRANSMISSION ARE DESCRIBED. NUMEROUS PHOTOGRAPHS OF EQUIPMENT AND TRANSMITTED MAP CONTOURS ARE INCLUDED. TRANSMISSION OF DIGITAL DATA APPEARED TO BE SATISFACTORY FOR WEATHER RADAR USE.

CONCLUSIONS:

THE VHF SEEK EXPERIMENT HAS PROVEN THAT DIGITAL DATA CAN BE TRANSMITTED VIA THE ATS-VHF TRANSPONDERS USING STANDARD PORTABLE TYPE FM RADIO EQUIPMENT AND COMMERCIALY AVAILABLE FSK MODEMS. SUB CARRIER MODULATION OF THE VOICE CHANNEL (3.5 - 3.97 MHz) WAS USED SUCCESSFULLY TO PROVIDE BIT ERRORS IN THE RANGE OF 0.00041 TO 0.0168 AT 12.5 BITS/SECOND DATA RATE, AND SIGNAL TO NOISE RATIOS IN THE AUDIO OF APPROXIMATELY 15 DB OR BETTER. THE SATELLITES SHOULD BE BROUGHT NEAR TO SATURATION TO MINIMIZE ERRORS.

IT WAS NOTED THAT IN MOST CASES THE CARRIER SIGNAL WAS EASILY DETECTED EVEN AT THE LOWER POWER LEVELS. THE SIGNAL TO NOISE RATIO HOWEVER IN THE AUDIO BANDWIDTH DECREASED RAPIDLY WITH A REDUCED UP-LINK POWER. THIS FACT TENDS TO INDICATE THAT MODULATION TECHNIQUES OTHER THAN SUB CARRIER MODULATION COULD IMPROVE THE BIT ERROR RATE.

SUBJECT: DATA TRANSMISSION METEOROLOGY

KEYWORDS: HURRICANE: APPLICATION TECHNOLOGY SATELLITE: VHF: DATA TRANSMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 44



DATE OF DOCUMENT/TYPE: JUN 72 / TECHNICAL REPORT

TITLE OF DOCUMENT: DEMONSTRATION OF SATELLITE DISTRIBUTION OF COMPUTER-ASSISTED INSTRUCTION FOR RURAL SCHOOLS (FINAL REPORT)

AUTHOR: STANFORD UNIVERSITY

SPONSORING AGENCY: INSTITUTE FOR MATHEMATICAL STUDIES IN THE SOCIAL SCIENCES, STANFORD UNIVERSITY

SATELLITE: ATS-1, ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: 15 MAY 71 - 15 JUN 72

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE OPERATIONAL PRACTICALITY OF A SATELLITE COMMUNICATION LINK BY OPERATION TEN TERMINALS IN A LOCAL SCHOOL VIA NASA'S ATS-1

# ABSTRACT:

IN MAY 1971, THE INSTITUTE FOR MATHEMATICAL STUDIES IN THE SOCIAL SCIENCES DEMONSTRATED THE OPERATIONAL PRACTICALITY OF A SATELLITE COMMUNICATION LINK BY OPERATION TEN TERMINALS IN A LOCAL SCHOOL VIA NASA'S ATS-1 SATELLITE FOR TWO SHORT PERIODS. AS A RESULT, OF THIS TEST, PROPOSALS FOR A FULL-SCALE EXPERIMENT WERE PREPARED FOR EARLY 1971 START-UP. BY MAY 1971, IMSS HAD SECURED SATELLITE TIME ON NASA'S ATS-3, EQUIPMENT DELIVERIES, SITE SELECTION, LICENSING, AND INSTALLATION PROBLEMS GOING UP TO THE STAFF UNTIL NOVEMBER 1971. THE EQUIPMENT WAS INSTALLED AT ISLETA PUEBLO ELEMENTARY SCHOOL, NEAR ALBUQUERQUE, NEW MEXICO.

AFTER THE TESTING BEGAN, VARIOUS PROBLEMS OCCURRED AND IT WAS EVIDENT THAT AT LEAST THREE MISTAKES HAD BEEN MADE IN PLANNING THE EXPERIMENT. FIRST AND FOREMOST, THE TECHNOLOGY INVOLVED WAS INSUFFICIENTLY UNDERSTOOD, MAKING IT VERY DIFFICULT TO BRING AN UNFUNDED PROJECT TO OPERATIONAL STATUS WITHOUT ADEQUATE ENGINEERING SUPPORT. SECOND, PERMISSION HAD BEEN GRANTED TO USE THE ISLETA PUEBLO SCHOOL IN RETURN FOR THE EDUCATIONAL BENEFITS OF OAI. IMSS HAD PROMISED TO START IN JULY 1971 AND THERE WAS STILL NO OAI AVAILABLE BY NOVEMBER. THIRD, IT WAS A MISTAKE TO ATTEMPT TO OPERATE AN EDUCATIONAL VENTURE FOR ONLY 30 MINUTES PER DAY (ONE ASSIGNMENT-3 TIMES). THE INTERNAL DEMAND FOR USAGE AT THE SCHOOL WAS TOO HIGH FOR SUCH ARBITRARY TIME LIMITATIONS.

THE ONLY WAY TO RESOLVE THE EDUCATIONAL COMMITMENT WE HAD MADE TO ISLETA PUEBLO WAS TO INSTALL A TELEPHONE CIRCUIT WHICH WOULD PROVIDE THE OAI SERVICE WHILE WORK CONTINUED ON THE SATELLITE CIRCUIT FOR 30 MINUTES EACH DAY. THE RF CIRCUIT REMAINED ONLY marginally useful. AS DEBUGGING PROGRESSED, THE NEED FOR EITHER INCREASED POWER OR MORE SOPHISTICATED DATA ENCODING BECAME MORE AND MORE APPARENT.

THE CIRCUIT THAT WAS ESTABLISHED ON THE ATS-3 HAD PROVED BOTH INTERESTING AND CHALLENGING. AVAILABLE GROUND EQUIPMENT IS GOOD, BUT NOT QUITE GOOD ENOUGH TO OVERCOME THE POWER LIMITATION WITHIN OUR ENVIRONMENTAL AND DATA REQUIREMENTS.

CONVENTIONAL FREQUENCY MULTIPLEX EQUIPMENT USED ON PHONE LINE CIRCUITS AND OPERATING WITHIN THE 300-3000 HZ BAND WAS USED FOR DATA ENCODING. THE VOICE-BAND SIGNAL WAS SENT FROM IMSS TO AN ANTENNA SITE ON A HILL BEHIND THE MAIN STANFORD CAMPUS. THERE, A STANDARD MOBILE RADIO TRANSDUCER AND YAGI ANTENNA WERE USED TO COMMUNICATE WITH ISLETA VIA ATS-3. AT ISLETA, SIMILAR RF AND FREQUENCY MULTIPLEX EQUIPMENT WAS INSTALLED IN THE SCHOOLROOM. THE ANTENNAS WERE PLACED ON THE BUILDING'S ROOF.

THE OBJECTIVE WAS TO SUCCESSFULLY TRANSMIT FREQUENCY MULTIPLEXED DATA OVER THIS LINK. EIGHT DATA CHANNELS WERE PLACED ON THE CIRCUIT. ALL CIRCUITS WERE FULLY DUPLEX, SO THE SEND AND RECEIVE INQUIRIES WERE IDENTIFIED AND SEPARATE.

THE EARLIEST PROBLEMS ENCOUNTERED IN THE SATELLITE PROJECT WERE CONCERNED WITH RECEIVER DEFENSITIZATION. SEVERAL VARIETIES OF TUNED STAGES, IMPROVED CABLE HARNESSSES, A FEW CAVITIES AND AN ACTIVE FILTER PREAMP DESIGN WERE TRIED. ANTENNA SEPARATION WAS ALSO NECESSARY. AT STANFORD EVEN A METAL BUILDING WAS INTERPOSED TO REDUCE THE COUPLING BETWEEN SEND AND RECEIVE ARRAYS.

ANOTHER PROBLEM ALSO AROSE WITH THE ANTENNAS. THE SIMPLE YAGI DESIGN IS A LOW-COST, LOW-GAIN ANTENNA.

SUBJECT: DATA TRANSMISSION

KEYWORDS: COMPUTERS; COMPUTER ASSISTED INSTRUCTION; ATS-1; ATS-3

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DATE OF DOCUMENT/TYPE: OCT 72

/ TECHNICAL REPORT

TITLE OF DOCUMENT: A REPORT TO NASA ON EXPERIMENTAL USE OF ATS-1 BY NATIONAL PUBLIC RADIO, INC.

AUTHOR: D'AVALE, D R

SPONSORING AGENCY: NATIONAL PUBLIC RADIO, INC.

SATELLITE: ATS-1

COMMUNICATIONS: VHF

EXPERIMENT PERIOD: 14 JUL 71 - JUL 72

SUBJECT OF EXPERIMENT:

THE PRINCIPAL PURPOSE OF THE EXPERIMENT WAS TO DEMONSTRATE THE USE OF COMMUNICATION SATELLITES IN THE TRANSMISSION OF RADIO PROGRAMS FROM THE NETWORK TO AN NPR MEMBER STATION; AND TO TEST THE KINDS OF EQUIPMENT REQUIRED TO PROVIDE VIABLE TRANSMISSION AND RECEPTION OF SUCH A PROGRAM SERVICE. SPECIFIC ATTENTION WAS PLANNED IN THE MINIMIZING OF GROUND STATION COSTS.

AN ANCILLARY PURPOSE OF THE EXPERIMENT WAS TO PERMIT EXAMINATION OF THE EFFECT ON SATELLITE RECEPTION OF CERTAIN INTERFERENCE FACTORS PECULIAR TO THE ALASKAN LOCATION OVER AN EXTENDED PERIOD OF TIME. PREVIOUS TESTS HAD BEEN CONDUCTED ON AN OCCASIONAL BASIS IN AN ATTEMPT TO ASCERTAIN THE IMPACT OF HIGH LATITUDE LOCATION AND INTERFERENCE FROM THE AURORAL PHENOMENON.

ABSTRACT:

THIS PROJECT HAS PROVIDED NATIONAL PUBLIC RADIO WITH AN OPPORTUNITY TO GAIN VALUABLE INSIGHT INTO COMMUNICATION SATELLITE TECHNOLOGY. NPR STAFF MEMBERS HAVE GAINED FIRST-HAND EXPERIENCE IN DIRECTING THE VARIOUS PHASES OF THE PROJECT, AND HAVE PROFITED GREATLY FROM CONTACTS WITH OTHER EXPERIMENTERS AT NASA, STANFORD ELECTRONICS LABORATORIES, UNIVERSITY OF ALASKA GEOPHYSICAL INSTITUTE, AND THE LISTEN HILL CENTER FOR BIOMEDICAL COMMUNICATIONS AT THE NATIONAL INSTITUTE OF HEALTH.

SPECIFIC TECHNICAL KNOWLEDGE HAS BEEN GAINED CONCERNING THE EFFECTS OF VARIOUS TRANSMITTERS, ANTENNAS, RECEIVERS, AND RELATED EQUIPMENT ON VHF TRANSMISSIONS THROUGH ATS-1. THIS HAS BEEN PARTICULARLY USEFUL TO NPR AS IT CONTINUES TO INVESTIGATE THE FEASIBILITY OF LOW-COST GROUND STATIONS FOR USE IN SATELLITE COMMUNICATIONS OF RADIO MATERIALS.

A PUBLIC SERVICE HAS BEEN PROVIDED TO THE PEOPLE WITHIN THE COVERAGE AREA OF KUAC-FM IN THE FAIRBANKS AREA: A SERVICE WHICH HAS BEEN NEW, UNIQUE AND HERETOFORE IMPOSSIBLE.

THE EXPERIMENT HAS REVEALED LIMITATIONS OF A SEVERE NATURE WITHIN THE FRAME OF REFERENCE OF FM BROADCASTING, ESPECIALLY IN RELATION TO RELIABILITY AND MAINTENANCE OF QUALITY. THESE LIMITATIONS WERE NOT UNEXPECTED IN LIGHT OF THE NATURE OF THE SATELLITE AND THE LIMITED GROUND STATION EQUIPMENT AVAILABLE TO THE EXPERIMENTERS. IT IS EXPECTED THAT SUBSEQUENT EXPERIMENTS WITH OTHER SATELLITES, POWERS, FREQUENCIES, AND GROUND STATIONS WILL CONTINUE TO REVEAL DATA USEFUL TO NPR AND OTHER POTENTIAL USERS OF DOMESTIC COMMUNICATION SATELLITES.

SUBJECT:

BROADCASTING

KEYWORDS:

NATIONAL PUBLIC RADIO; ATS-1; BROADCASTING; ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 66

DATE OF DOCUMENT/TYPE: NOV 73 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: TIME AND FREQUENCY BROADCAST EXPERIMENTS FROM THE ATS-3 SATELLITE  
 AUTHOR: HANSON, D W; HAMILTON, W F  
 SPONSORING AGENCY: NATIONAL BUREAU OF STANDARDS, BOULDER, COLORADO  
 SATELLITE: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: AUG 71 - AUG 73  
 OBJECT OF EXPERIMENT: TO REVEAL THE ADVANTAGES AND SPECIAL PROBLEMS ASSOCIATED WITH THE BROADCASTING OF TIME AND FREQUENCY INFORMATION FROM GEOSTATIONARY SATELLITES  
 ABSTRACT: AN EXPERIMENT DESIGNED TO REVEAL THE ADVANTAGES AND SPECIAL PROBLEMS ASSOCIATED WITH THE BROADCASTING OF TIME AND FREQUENCY INFORMATION FROM GEOSTATIONARY SATELLITES IS DISCUSSED. INCLUDED ARE DISCUSSIONS CONCERNING SATELLITE MOTION, TIME DELAY VARIATION, DOPPLER SHIFT DUE TO THE MOTION, AND CALCULATION OF DELAY. RECEIVER OF GROUND STATION EQUIPMENT REQUIREMENTS, TIME RECOVERY TECHNIQUES, TIMING RESOLUTION AND ACCURACY, AND SPECIAL ADVANTAGES OF SATELLITE BROADCASTS FOR TIME AND FREQUENCY DISSEMINATION ARE ALSO DISCUSSED. SPECIALLY EQUIPPED SITES IN NORTH AND SOUTH AMERICA GATHERED DATA FROM THE EXPERIMENTAL SATELLITE BROADCAST, WHICH IN TURN WERE USED TO DETERMINE THE POTENTIAL ACCURACY OF SATELLITE DISSEMINATION. THE RESULTS OF WHICH ARE PRESENTED. DELAY COMPUTATION AIDS FOR THE USER WERE DESIGNED TO PROVIDE A SIMPLE AND INEXPENSIVE MEANS OF COMPUTING FREE SPACE DELAYS BETWEEN THE MASTER CLOCK AND THE USER VIA A GEOSTATIONARY SATELLITE. THE AIDS, DELAY OVERLAYS ON AN EARTH MAP AND A CIRCULAR SLIDE RULE, ARE DISCUSSED WITH EXAMPLES. QUALITATIVE DISCUSSIONS OF THE SIGNALS AND BROADCAST FORMAT ARE GIVEN. FINAL COMMENTS ARE MADE CONCERNING THE RESULTS OF THE EXPERIMENT AND HOW THEY MIGHT REFLECT UPON A FINAL SYSTEM DESIGN FOR A PERMANENT SERVICE USING ONE OR MORE GEOSTATIONARY SATELLITES.  
 SUBJECT: DATA TRANSMISSION  
 KEYWORDS: FREQUENCY; TIME DISSEMINATION; ATS-3; NATIONAL BUREAU OF STANDARDS  
 TECHNICAL REPORT NUMBER: 645 UNIVERSITY OF DAYTON ACCESS NUMBER: 47

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DATE OF DOCUMENT/TYPE: FEB 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: REPORT ON COMMUNICATIONS TESTS AMONG MOJAVE (NASA), KOOTWIJK (NETHERLANDS) AND TWO SHIPS NIEUW AMST  
ERDAM AND ATLANTIC CROWN USING ATS-3 SATELLITE (FINAL REPORT)

AUTHOR: NETHERLANDS POSTAL AND TELECOMMUNICATIONS SERVICES (NETHERLANDS PTT)

SPONSORING AGENCY: NETHERLANDS POSTAL AND TELECOMMUNICATIONS SERVICES

SATELLITE: ATS-3 COMMUNICATIONS: VHF, FM, SSB EXPERIMENT PERIOD: 24 AUG 70 - 26 FEB 71

OBJECT OF EXPERIMENT: TO EVALUATE THE UTILITY OF THE ATS VHF TRANSPONDER FOR MARINE COMMUNICATIONS

ABSTRACT: IN THE PERIOD AUGUST 4, 1970 TO FEBRUARY 26, 1971, COMMUNICATIONS TESTS WERE PERFORMED, COMMUN  
ICATION BEING ESTABLISHED BETWEEN THE NASA EARTH STATION MOJAVE, AN EXPERIMENTAL EARTH STATION IN T  
HE NETHERLANDS (KOOTWIJK) AND THE SHIP NIEUW AMSTERDAM AND ATLANTIC CROWN. FOR THIS PURPOSE USE W  
AS MADE OF THE ATS-3 SATELLITE. THE TEST TRANSMISSIONS BETWEEN SUPNMAN RADIO (BRITISH POST OFFICE)  
AND THE ATLANTIC CAUSEWAY WERE ALSO LISTED TO REGULARLY. IN SOME CASES COMMUNICATIONS OF SHORT D  
URATION WERE ESTABLISHED, BETWEEN THE ENGLISH AND THE DUTCH PARTICIPANTS IN THE TESTS.

THE TESTS COULD BE MADE THANKS TO THE CO-OPERATION OF THE NETHERLANDS PTT, RADIO HOLLAND N.V.  
AND THE "HOLLAND-AMERIKA SHIPPING LINE," FOR THE PREPARATION AND PERFORMANCE OF THESE TESTS THANKF  
L USE WAS MADE OF THE ASSISTANCE OF THE US COAST GUARD, INTER ALIA FOR THE LAYING OF THE CONTACTS W  
ITH NASA, AND THE MAKING AVAILABLE OF PART OF THEIR MARITIME EQUIPMENT.

THE TEST PROGRAMME COMPRISED EXPERIMENTS WITH: TELEPHONY, SELECTIVE CALLING FACSIMILE, DIRECT  
PRINTING TELEGRAPHY.

THE TEST PROGRAMME WAS PERFORMED IN TWO STAGES. IN THE FIRST STAGE, FROM AUGUST UNTIL OCTOBER  
1970, TEST TRANSMISSIONS WERE PERFORMED BY THE NASA EARTH STATION MOJAVE. THE TESTS CONCERNED THE  
TRANSMISSION OF TELEPHONY, SELECTIVE CALLING (COSP SYSTEM) AND FACSIMILE. ONLY SSB-MODULATION TECHNI  
QUE WAS APPLIED. THE TRANSMISSIONS WERE RECEIVED BY THE NIEUW AMSTERDAM (ABBREVIATED IN THE FOLLO  
ING AS N.A.) AND BY THE EXPERIMENTAL EARTH STATION AT KOOTWIJK (ABBREVIATION: KWK). THE ATLANTIC C  
ROWN (A.C.) FUNCTIONED AS A MONITORING STATION DURING THE LAST PART OF THIS STAGE.

IN THE SECOND STAGE, FROM NOVEMBER 1970 TO FEBRUARY 1971, TEST TRANSMISSIONS WERE PERFORMED BY  
KOOTWIJK AND BY THE N.A. THE A.C. AND MOJAVE FUNCTIONED AS MONITORING STATIONS. DURING THIS STAGE  
THE ACCENT WAS LAID ON THE USE OF NARROWBAND MODULATION SYSTEMS: SSB AND MULTI-CHANNEL FSK.

IN BOTH STAGES DAILY TRANSMISSIONS WERE PERFORMED DURING TWO PERIODS OF 45 MINUTES EACH, FROM  
1100 Z - 1145 Z AND FROM 2100 Z - 2145 Z.

CONCLUSION: THE RESULTS OF THE FIRST PHASE OF THE TESTS CONFIRM THE CONCLUSION OF EARLIER TESTS HELD ELSEW  
HERE, I.E., IF USE IS MADE OF FREQUENCY MODULATION, VERY RELIABLE COMMUNICATIONS CAN BE ESTABLISHED  
WITH SHIPS AT SEA VIA A VHF-SATELLITE.

FROM THE RESULTS OF THE SECOND PHASE, IT APPEARS THAT SATISFACTORY RESULTS CAN ALSO BE OBTAIN  
ED WITH NARROWBAND MODULATION TECHNIQUES. THIS APPLIES IN PARTICULAR TO THE TRANSMISSION OF SELCAL  
AND FACSIMILE SIGNALS WITH SSB-MODULATION, AND, IN A SMALLER DEGREE, ALSO TO VOICE COMMUNICATION.  
A DIRECT COMPARISON OF THE RESULTS IS MORE DIFFICULT, BECAUSE OF THE DETERIORATED CIRCUMSTANCES IN  
THE SECOND PHASE.

IT IS REMARKABLE THAT IN MANY CASES, THE QUALITY OF THE VOICE COMMUNICATIONS WITH SSB-MODULATI  
ON WAS DESCRIBED AS "GOOD" BY THE OPERATORS AT KOOTWIJK. THE INTELLIGIBILITY AS A FUNCTION OF THE  
SIGNAL-TO-NOISE RATIO DECREASES LESS RAPIDLY WITH SSB-MODULATION THAN WITH FREQUENCY MODULATION. ON  
THE COMMUNICATION WITH FREQUENCY MODULATION THE SPIN MODULATION WAS DISTINCTLY NOTICEABLE AS A PER  
IODICAL, STRONG INCREASE OF THE NOISE IN THE RHYTHM OF THE SPIN FREQUENCY OF THE SATELLITE. THE DIS  
CRIMINATOR OPERATES PERIODICALLY BELOW THE THRESHOLD.

AN INTERESTING FEATURE IS THAT IN A COMMUNICATION SYSTEM WITH SSB-MODULATION, EXTRA BANDWIDTH  
CAN BE SAVED BY THE USE OF THE SAME FREQUENCY FOR BOTH DIRECTIONS IN THE CASE OF DUPLEX TRAFFIC.

THE RESULTS OF THE TELEGRAPHY TESTS, IN WHICH FSK WAS USED, WITH A SHIFT OF 90TH 35 AND 170 HZ  
WAS AN INDICATION THAT SATISFACTORY RESULTS ARE TO BE EXPECTED, ESPECIALLY WITH THE LATTER SYSTEM  
THE NUMBER OF TEST COMMUNICATIONS HAD BEEN SLIGHT, HOWEVER, SEEING THE RESULTS, A FURTHER INVESTI  
GATION SEEMS MORE THAN JUSTIFIED.

SUBJECT:

BROADCASTING  
NAVIGATION

DATA TRANSMISSION  
VOICE COMMUNICATIONS

MARITIME TRAFFIC CONTROL

KEYWORDS:

ATS-3: SHIPS: NETHERLANDS: NIEUW AMSTERDAM: SS ATLANTIC CROWN: FACSIMILE

UNIVERSITY OF DAYTON ACCESS NUMBER: 49

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DATE OF DOCUMENT/TYPE: JUL 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: VILLAGE SATELLITE II

AUTHOR: PARKER, W B

SPONSORING AGENCY: ALASKA

SATELLITE: ATS-1 COMMUNICATIONS: VHF (VOICE)

EXPERIMENT PERIOD: SEP 72-MAY 73

OBJECT OF EXPERIMENT: TO GAIN EXPERIENCE IN THE USE OF A MEDICAL, EDUCATIONAL, AND INFORMATIONAL INTERCHANGE

ABSTRACT: THE ALASKA EXPERIMENT USES THE ATS-1 SATELLITE TO STUDY THE ADVANTAGES AND DISADVANTAGES OF SATELLITE TELECOMMUNICATIONS BETWEEN REMOTE COMMUNITIES. THE REPORT DESCRIBES AND EVALUATES MANY FACETS OF THE ALASKA EDUCATIONAL EXPERIMENT INCLUDING PROJECT MANAGEMENT, VILLAGE PARTICIPATION, AND TOTAL PROGRAM. THE PERIOD COVERED IS FROM SEP 72 TO MAY 73. THE STATED OBJECTIVES OF THE EXPERIMENT ARE EVALUATED AND COMMENTS MADE AS TO HOW WELL EACH OBJECTIVE WAS ACHIEVED. THIS REPORT HAS GOOD BACKGROUND MATERIAL.

CONCLUSIONS: THE ACTION STUDY WAS SUCCESSFUL IN EXPANDING CONCEPTS AND METHODS OF EDUCATIONAL BROADCASTING TO THE SCHOOL OF RURAL ALASKA. COMMUNITY SERVICE PROGRAMMING DECLINED FROM THE LEVELS ACHIEVED DURING THE PREVIOUS YEAR. MAINTENANCE OF EQUIPMENT WAS MORE OF A PROBLEM THAN IN PREVIOUS YEAR. COORDINATION WAS LESS EFFECTIVE WITHIN THE ACTION STUDY DUE TO LACK OF A EXECUTIVE DIRECTOR. IT WAS CONFIRMED THAT THERE IS A SUBSTANTIAL LISTENING AUDIENCE IN THE VILLAGES THAT DOES NOT INDICATE ITS PRESENCE BY PARTICIPATING. FULL POWER IS NECESSARY FOR SUCCESSFUL PROGRAMMING OF ALL TYPES.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ALASKA; ATS-1; VILLAGE SATELLITE; TELECOMMUNICATIONS; EDUCATIONAL BROADCASTING

UNIVERSITY OF DAYTON ACCESS NUMBER: 49

DATE OF DOCUMENT/TYPE: JAN 72 / TECHNICAL REPORT  
TITLE OF DOCUMENT: THE ALOHA SYSTEM  
AUTHOR: APPARSON, NORMAN  
SPONSORING AGENCY: THE UNIVERSITY OF HAWAII, HONOLULU, HAWAII

EXPERIMENT PERIOD: 1968-1972

OBJECT OF EXPERIMENT: TO INVESTIGATE ALTERNATIVES TO THE USE OF CONVENTIONAL WIRE COMMUNICATIONS FOR COMPUTER-COMPUTER LINKS.

ABSTRACT: THIS REPORT PROVIDES A STATUS REPORT AND DESCRIPTION OF THE ALOHA SYSTEM INVOLVES THE ANALYSIS AND CONSTRUCTION OF ADVANCED METHODS OF RANDOM ACCESS COMMUNICATIONS IN LARGE COMPUTER-COMMUNICATION SYSTEMS.

THE EXISTING ALOHA SYSTEM COMPUTER-COMMUNICATION NETWORK USES TWO 24,000 BAUD CHANNELS IN THE UHF BAND. THE SYSTEM EMPLOYS MESSAGE SWITCHING TECHNIQUES SIMILAR TO THOSE OF THE ARPANET, IN CONJUNCTION WITH A NOVEL FORM OF RANDOM ACCESS RADIO CHANNEL MULTIPLEXING. BY MEANS OF THESE TECHNIQUES THE SYSTEM HAS THE CAPACITY TO ACCOMMODATE SEVERAL HUNDRED ACTIVE USERS OF ALPHANUMERIC CONSOLES ON THE TWO CHANNELS AVAILABLE. EACH OF THESE USERS CAN TRANSMIT AND RECEIVE AT A PEAK DATA RATE OF 24,000 BAUD ALTHOUGH THE AVERAGE DATA RATE OF THE USERS MUST OF COURSE BE CONSIDERABLY LESS.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ALOHA; COMPUTER NETWORK; DATA TRANSMISSION

TECHNICAL REPORT NUMBER: 372-1

UNIVERSITY OF DAYTON ACCESS NUMBER: 53

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DATE OF DOCUMENT/TYPE: MAR 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: PACKET SWITCHING WITH SATELLITES

AUTHOR: ABRAMSON, NORMAN

SPONSORING AGENCY: UNIVERSITY OF HAWAII, HONOLULU, HAWAII

ABSTRACT: THE BEGINNING OF THE 1970'S HAS WITNESSED THE ESTABLISHMENT OF NEW FORMS OF COMPUTER-COMMUNICATION NETWORKS, WITH CLEAR ADVANTAGES OVER THE VOICE ORIENTED POINT-TO-POINT, CHANNEL SWITCHED NETWORKS OF THE 1950'S. THIS PAPER DESCRIBES SOME OF THE MOST IMPORTANT PROPERTIES OF THESE NEW NETWORKS -- PACKET SWITCHING, BILATERAL BROADCASTING AND BUFAST RANDOM ACCESS CAPABILITIES. THE ADVENT OF EASILY AVAILABLE, INEXPENSIVE SATELLITE COMMUNICATIONS GIVES ADDED IMPORTANCE TO THESE PROPERTIES AND PROVIDES ADDED CAPABILITIES FOR COMPUTER-COMMUNICATION NETWORKS OF THE FUTURE. IN THIS PAPER WE PROVIDE A THEORETICAL FRAMEWORK FROM WHICH WE CAN DERIVE THE CAPACITY, DELAY AND AVERAGE POWER OF THESE NEW FORMS OF COMMUNICATION. FINALLY WE DESCRIBE HOW THESE FORMS OF COMMUNICATION MIGHT BE EMPLOYED IN SOME OF THE PLANNED US DOMESTIC SATELLITE SYSTEMS TO PROVIDE A PUBLIC PACKET SWITCHED SERVICE.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ALOHA; DATA TRANSMISSION; PACKET SWITCHING; COMPUTER NETWORK

TECHNICAL REPORT NUMBER: M73-2

UNIVERSITY OF DAYTON ACCESS NUMBER: 51

DATE OF DOCUMENT/TYPE: JJN 74

/ TECHNICAL REPORT

TITLE OF DOCUMENT: HEALTH CARE AND SATELLITE RADIO COMMUNICATION IN VILLAGE ALASKA (FINAL REPORT)

AUTHOR: KREIMER, DI HUDSON, M; FOOTE, J

SPONSORING AGENCY: INSTITUTE FOR COMMUNICATION RESEARCH, STANFORD UNIVERSITY

SATELLITE: ATS-1

EXPERIMENT PERIOD: AUG 71 - MAY 74

OBJECT OF EXPERIMENT:

AS ORIGINALLY OUTLINED IN THE LISTER HILL CENTER REPORT, "A SATELLITE COMMUNICATIONS PROJECT FOR THE PACIFIC NORTHWEST AND ALASKA," (OCTOBER 1973), THE FUNDAMENTAL AIMS OF THE EXPERIMENTS INCLUDED BOTH TECHNICAL AND SPECIFICALLY BIOMEDICAL COMMUNICATIONS MATTERS. THESE GOALS WERE TO: (1) DETERMINE THE DEGREE TO WHICH SATELLITE COMMUNICATIONS TECHNOLOGY CAN BE USED FOR BIOMEDICAL COMMUNICATIONS IN REMOTE AREAS; (2) PROVIDE TECHNICAL EXPERIENCE WHICH WILL BE OF USE IN THE DESIGN AND DEVELOPMENT OF FUTURE OPERATIONAL SATELLITE SYSTEMS AND MEDICAL SERVICES; (3) GATHER TECHNICAL DATA TO BE USED IN THE DESIGN AND DEVELOPMENT OF SMALL, EFFECTIVE, AND ECONOMICAL SATELLITE COMMUNICATIONS EARTH TERMINALS; (4) GAIN EXPERIMENTAL DATA DESIGNS OF BASEBAND COMMUNICATIONS EQUIPMENT; AND (5) CONDUCT CONTROLLED EXPERIMENTS TO DETERMINE EFFECTIVE METHODS OF PROVIDING HEALTH CARE EDUCATION AND MEDICAL CONSULTATIONS TO GEOGRAPHICALLY ISOLATED LOCATIONS.

ABSTRACT:

THE RESEARCH CARRIED OUT INCLUDED:

- (1) A QUASI-EXPERIMENTAL COMPARISON OF THE COMMUNICATION PERFORMED IN THE AIDE-TO-DOCTOR SYSTEM, WHEN USING HF RADIO AND WHEN USING SATELLITE RADIO.
- (2) AN ANALYSIS OF THE PERFORMANCE OF THE AIDE-TO-DOCTOR EXCHANGE, BOTH FOR THE QUALITY, FREQUENCY, AND DURATION OF THE EXCHANGES, AND FOR THEIR MEDICAL CONTENT.
- (3) AN ANALYSIS OF THE IMPACT OF THE SATELLITE COMMUNICATION ON THE HEALTH AIDE BEHAVIOR, AND OF THEIR ATTITUDES TOWARD THE SYSTEM.
- (4) A QUASI-EXPERIMENTAL ANALYSIS OF THE IMPACT OF THE SATELLITE RADIO LINK ON THE HOSPITALIZATION RATES OF THE VILLAGERS SERVED BY IT COMPARED WITH THOSE VILLAGERS SERVED BY HF RADIO.
- (5) AN ANALYSIS OF THE EXCHANGES BETWEEN A PHYSICIAN ON A REMOTE ISLAND AND HIS CONSULTING COLLEAGUES AT A MAJOR MEDICAL CENTER.
- (6) A QUASI-EXPERIMENTAL EVALUATION OF PARAMEDICAL EDUCATION BY SATELLITE, COMPARING THE LEARNING SCORES OF NURSES OBTAINED AFTER PARTICIPATION IN A COGNITIVE CARE NURSING COURSE, DELIVERED BOTH IN FACE-TO-FACE SITUATION IN A SCHOOL SETTING AND BY SATELLITE TO NURSES STATIONED IN REMOTE CLINICS.
- (7) ALTERNATIVE SYSTEMS TO PROVIDE HEALTH COMMUNICATION SERVICES WERE ASSESSED. THE RESULTS INCLUDED HARDWARE, SATELLITE LINK, AND COST ANALYSIS.

SUBJECT:

MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS:

ATS-1; BIOMEDICAL; MEDICAL COMMUNICATIONS; ALASKA; HEALTH

UNIVERSITY OF DAYTON ACCESS NUMBER: 52

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DATE OF DOCUMENT/TYPE: 1972 / SPEECH

TITLE OF DOCUMENT: THE PEACESAT PROJECT

AUTHOR: BASTON, J W

SPONSORING AGENCY: PEACESAT, UNIVERSITY OF HAWAII, HONOLULU, HAWAII

SATELLITE: ATS-1

ABSTRACT: THIS PAPER DESCRIBES THE EARLY PERIOD OF PEACESAT. ACTIVITIES, DATES AND PEOPLE INVOLVED IN THE PROJECT ARE MENTIONED. LOCATION OF TERMINALS IS GIVEN. THIS IS PRIMARILY HISTORICAL INFORMATION. LITTLE EVALUATION OF THE PROGRAM IS GIVEN.

SUBJECT: EDUCATION APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 53

DATE OF DOCUMENT/TYPE: MAR 1975 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: ALASKA COMMUNICATIONS

AUTHOR: BRADY, C

SPONSORING AGENCY: UNKNOWN

SATELLITE: ATS-1

ABSTRACT: INCLUDED ARE A SUMMARY OF THE RESULTS OF THE ALASKA EXPERIMENT AND THE PRESENT STATUS OF THE A  
UCID COMMUNICATIONS PROGRAM IN THE STATE. DOLLAR EXPENDITURES FOR FY 1976 ARE ESTIMATED. ALSO INC.  
UDED IS A TABLE SHOWING SATELLITE TERMINAL LOCATIONS FOR THE BIONEDICAL NETWORK PROGRAM.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; ALASKA; HEALTH; EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 56

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DATE OF DOCUMENT/TYPE: JAN 72 / CORRESPONDENCE

TITLE OF DOCUMENT: PRELIMINARY EVALUATION OF THE RESULTS OBTAINED DURING THE X-RAY TRANSMISSION EXPERIMENT

AUTHOR: G'FOGHLUDHA, F

SPONSORING AGENCY: DUKE UNIVERSITY MEDICAL CENTER

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: 15 NOV 71

OBJECT OF EXPERIMENT: TO DETERMINE THE FEASIBILITY OF TRANSMITTING TAPED FLUOROSCOPIC AND RADIOGRAPHIC IMAGES VIA GROUND STATION TO SATELLITE AND BASIC AGAIN, AND TO EVALUATE THE CLINICAL WORTH OF SUCH TRANSMISSIONS

ABSTRACT: THIS IS A PRELIMINARY EVALUATION OF THE RESULTS OBTAINED DURING THE X-RAY TRANSMISSION EXPERIMENT CARRIED OUT NOVEMBER 15, 1971 AT FOSHAN, NORTH CAROLINA. THE FIRST PART OF THE EXPERIMENT WAS CARRIED OUT USING FILMS, TAPES, AND STANDARD CLINICAL PLAY-BACK EQUIPMENT PROVIDED AND OPERATED BY DUKE UNIVERSITY MEDICAL CENTER STAFF. ALL DETAILS OF TRANSMISSION BEING TAKEN CARE OF BY NASA STAFF. IN THE SECOND PART OF THE EXPERIMENT, THE RECEIVED IMAGES, WHICH WERE TAPED ON A DUPLICATE SET OF PLAY-BACK EQUIPMENT PROVIDED BY US, WERE TO OUR EYES INDISTINGUISHABLE FROM THE TRANSMITTED IMAGES.

SUBJECT: DATA TRANSMISSION MEDICAL/HEALTH APPLICATIONS

KEYWORDS: X-RAY; ATS-1; DUKE UNIVERSITY MEDICAL CENTER; IMAGE TRANSMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 55

DATE OF DOCUMENT/TYPE: JAN 74 /

TITLE OF DOCUMENT: STATUS AND FUTURE PLANS OF KASHIMA GROUND STATION

AUTHOR: THE RADIO RESEARCH LABORATORIES

SPONSORING AGENCY: MINISTRY OF POSTS AND TELECOMMUNICATIONS, JAPAN

SATELLITE: ATS-1 COMMUNICATIONS: VHF, UHF EXPERIMENT PERIOD: APR 70 - NOV 73

SUBJECT OF EXPERIMENT: TO TEST THE EFFECTIVENESS OF A SATELLITE LINK FOR TV, DATA TRANSMISSION, AND NAVIGATION TYPE COMMUNICATION

ABSTRACT:

EXPERIMENTS MADE AT KASHIMA STATION SINCE THE LAST MEETING IN APRIL 1971, ARE LISTED UP BELOW AND SUMMARIZED BRIEFLY IN A SEPARATE BROCHURE TITLED, "SATELLITE COMMUNICATION EXPERIMENTS VIA ATS-1. DETAILS OF EACH EXPERIMENT HAVE BEEN SENT TO THE ATS PROJECT OFFICE AT GSEC FOR THE ATS TECHNICAL DATA REPORT.

ALL THE EXPERIMENTS WERE CARRIED OUT BY USING THE ANTENNA FACILITIES AND THE SHF TRANSPONDER NUMBER 1 OF ATS-1 UNTIL FEBRUARY 1972, AND THEN THE TRANSPONDER NUMBER 2 AFTER MARCH 1972.

1. DATA PROCESSING OF SSCU PICTURE
2. TRANSMISSION TEST VIA ATS-1 OF THE LINE-SEQUENTIAL TIME-DIVISION MULTIPLEXING SYSTEM OF VIDEO AND SOUND SIGNALS (WITH NHK TECHNICAL RESEARCH LABORATORIES)
3. TRANSMISSION EXPERIMENT VIA ATS-1 OF A COLOR TV SIGNAL MULTIPLEXED WITH PCM SOUND SIGNALS (WITH NHK TECHNICAL RESEARCH LABORATORIES)
4. SSPA COMMUNICATION EXPERIMENT VIA ATS-1
5. BASIC CHARACTERISTICS OF SATELLITE REPEATER FOR MULTIPLE INPUT SIGNALS
6. TRANSMISSION EXPERIMENTS VIA ATS-1 OF THE NARROW BAND DIGITAL TONE RANGING AND DATA TRANSMISSION SYSTEM FOR NAVIGATION SATELLITE (WITH ELECTRONIC NAVIGATION RESEARCH INSTITUTE, MINISTRY OF TRANSPORT)
7. SSRF EXPERIMENT VIA ATS-1

SUBJECT: BROADCASTING DATA TRANSMISSION NAVIGATION

KEYWORDS: ATS-1; KASHIMA; TELEVISION; JAPAN; COLOR TELEVISION; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 55

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DATE OF DOCUMENT/TYPER: DEC 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: SYSTEM DESIGN PLAN MARITIME SATELLITE NAVIGATION/COMMUNICATION PROGRAM: PHASE II--EXPERIMENT SYSTEM DEVELOPMENT AND OPERATION

AUTHOR: APPLIED INFORMATION INDUSTRIES (AII)

SPONSORING AGENCY: APPLIED INFORMATION INDUSTRIES (AII)

SATELLITE: ATS-3, ATS-5 COMMUNICATIONS: UHF, L-BAND

EXPERIMENT PERIOD: JUL 71 - FEB 73

OBJECT OF EXPERIMENT: TO IMPROVE THE COMPETITIVE POSITION OF THE U.S. MARITIME INDUSTRY BY THE DEVELOPMENT AND INTRODUCTION OF NEW SYSTEMS, TECHNIQUES, AND FACILITIES WHICH WILL RESULT IN HIGHLY EFFICIENT SHIP AND FLEET OPERATIONS. ONE METHOD IS BY MEANS OF SATELLITE SYSTEMS WHICH CAN PLAY A MAJOR ROLE IN IMPROVING MARITIME OPERATIONS IN THE AREA OF RELIABLE SHIP-TO-SHORE COMMUNICATIONS AND NAVIGATION.

ABSTRACT: IN ORDER TO EXPLOIT NEW TECHNOLOGY, MARAD INITIATED A MARITIME SATELLITE NAVIGATION/COMMUNICATION PROGRAM IN 1971 TO DETERMINE WHETHER PRESENT SPACE TECHNOLOGY AND TECHNIQUES COULD BE TRANSLATED INTO AN OPERATIONAL SYSTEM WHICH WOULD PROVIDE SIGNIFICANT ECONOMIC BENEFITS TO THE U.S. MARITIME TRANSPORTATION INDUSTRY BY THE LATE 1970'S. A MULTIPHASE DEVELOPMENTAL PROGRAM TO BE CONDUCTED OVER FIVE YEARS WAS ORGANIZED IN THE FOLLOWING STEPS:

PHASE I CONCEPT DEFINITION AND FEASIBILITY DEMONSTRATION

PHASE II EXPERIMENTAL SYSTEM DEVELOPMENT AND OPERATION

A. EXPERIMENT SYSTEM IMPLEMENTATION

B. EXPERIMENT SYSTEM OPERATION

PHASE III PROTOTYPE SYSTEM DEVELOPMENT AND OPERATION

THE FIRST PHASE, COMPLETED IN JUNE 1971, DEFINED A SYSTEM CONCEPT EMPLOYING SYNCHRONOUS SATELLITES AS RELAY STATIONS LINKING SHIPS TO A SHORE-BASED MARITIME COORDINATION CENTER, AND DEMONSTRATED THE FEASIBILITY OF TWO-WAY UHF COMMUNICATIONS BETWEEN SHIP AND SHORE VIA THE NASA ATS-5 SATELLITE USING RELATIVELY SIMPLE EXPERIMENTAL TERMINALS.

THE SECOND PHASE INVOLVES THE DEVELOPMENT AND OPERATION OF AN EXPERIMENTAL MARITIME NAVIGATION/COMMUNICATIONS SYSTEM TO OBTAIN DATA AND INFORMATION ON OPERATIONAL AND TECHNICAL REQUIREMENTS FOR THE DESIGN OF AN EFFECTIVE OPERATIONAL SYSTEM. AN ESSENTIAL FEATURE OF THIS PHASE IS THE IDENTIFICATION AND DEVELOPMENT OF INTERFACES BETWEEN THE VARIOUS COMMERCIAL ORGANIZATIONS AND GOVERNMENT AGENCIES WHICH ARE IMPORTANT TO THE SUCCESS OF THE OVERALL SYSTEM.

PHASE III IS THE EXTENSION OF THE EXPERIMENTAL NAVIGATION/COMMUNICATIONS SYSTEM INTO A PROPER ADAPTATION OF PROTOTYPE SYSTEM PROVIDING OCEANIC COMMUNICATION AND NAVIGATION CAPABILITIES AT THE ALLOCATED RADIO FREQUENCY BAND DESIGNATED BY THE LATEST INTERNATIONAL AGREEMENTS. DURING THIS PHASE, OPERATIONAL-TYPE EQUIPMENT WILL BE DEVELOPED AND THE GROUNDWORK WILL BE LAID FOR RESOLVING ORGANIZATIONAL AS WELL AS TECHNICAL PROBLEMS, SO THAT THE SUBSEQUENT DEFINITION AND IMPLEMENTATION OF AN OPERATIONAL SYSTEM CAN BE SUCCESSFULLY CONCLUDED.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: NAVIGATION; COMMUNICATIONS; MARITIME; SHIPS; ATS-5; ATS-3

UNIVERSITY OF DAYTON ACCESS NUMBER: 57

DATE OF DOCUMENT/TITLE: DFC 6A / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: PERFORMANCE OF MEXICO CITY-LONDON TELEVISION CHAIN USED FOR THE 1968 OLYMPICS

AUTHOR: SAVAGE, J G; PADEL, S M

SPONSORING AGENCY: BRITISH BROADCASTING CORPORATION, ENGINEERING DIVISION

SATELLITE: ATS-3 COMMUNICATIONS: MICROWAVE EXPERIMENT PERIOD: 12 OCT 68 - 27 OCT 68

OBJECT OF EXPERIMENT: TO TRANSMIT COLOR PICTURES OF THE MEXICO OLYMPIC GAMES TO EUROPE VIA SATELLITE TELEVISION CHAIN

ABSTRACT: EUROPEAN TELEVISION COVERAGE OF THE 1968 OLYMPIC GAMES WAS ORGANIZED BY THE EBU. SIGNALS FROM VARIOUS OUTSIDE BROADCAST POINTS IN MEXICO WERE RELAYED TO AN EBU CONTROL ROOM IN A COMMUNICATIONS BUILDING IN MEXICO CITY. THE 625-LINE NTSC VISION OUTPUT FROM THIS CONTROL ROOM WAS ROUTED TO A MEXICAN FIT AREA ON ANOTHER FLOOR OF THIS BUILDING AND FROM THERE THE SIGNAL WAS TRANSMITTED, BY MICROWAVE LINK, TO THE MEXICAN SATELLITE EARTH STATION AT TULANCINGO, SOME SEVENTY MILES AWAY. TULANCINGO TRANSMITTED THE SIGNAL UP TO THE GEOSTATIONARY NASA APPLICATIONS TECHNOLOGY SATELLITE ATS-3, WHICH WAS POSITIONED OVER THE EASTERN TIP OF BRAZIL. IT HAD BEEN INTENDED THAT A COMMUNICATIONS SATELLITE OF THE INTELSAT 3 SERIES SHOULD BE USED, BUT THE POCKET WHICH WAS INTENDED TO PUT THIS INTO ORBIT HAD TO BE DESTROYED SOON AFTER LAUNCH AND IT WAS NOT POSSIBLE TO PREPARE ANOTHER IN TIME FOR THE OLYMPICS.

THE SIGNAL RETRANSMITTED BY ATS-3, WAS RECEIVED BY THE GPO EARTH STATION GOONHILLY 1, AND CONVERTED BY MAIN AND RESERVE MICROWAVE LINKS TO MUSEUM EXCHANGE IN LONDON. BOTH MAIN AND RESERVE CHAINS WERE EXTENDED OVER CABLE LINKS, VIA BROADCASTING HOUSE, TO THE TELEVISION CENTER. HERE THE SIGNALS WERE EQUALIZED, THE BETTER OF THE TWO WAS THEN SELECTED AND PASSED TO A FIELD STORE STANDARDS CONVERTER FOR CONVERSION TO 625-LINE PAL STANDARDS. THE CONVERTED SIGNAL WAS ROUTED TO BBC1 AND BBC 2, THE ITA PROGRAM COMPANIES AND BRUSSELS FOR DISTRIBUTION BY THE EBU TO THE REST OF EUROPE.

COORDINATION OF THE SATELLITE OPERATION WAS CARRIED OUT BY THE USA EARTH STATION AT ETAM, WHICH ALSO ACTED AS "BACKUP" FOR TULANCINGO.

THIS MEMORANDUM DEALS WITH THE PERFORMANCE OF THE TELEVISION TRANSMISSION CHAIN BETWEEN THE EBU CONTROL ROOM IN MEXICO CITY AND THE BBC CONVERTER AREA IN TELEVISION CENTER.

CONCLUSION: THE GENERAL QUALITY OF THE COLOR PICTURES RECEIVED DURING THE OLYMPIC GAMES PERIOD HAVE BEEN EXCELLENT, AND THE ASSOCIATED AUDIO PROGRAM CHANNEL HAS PROVIDED A CIRCUIT OF QUITE GOOD QUALITY. CERTAIN VARIATIONS IN DIFFERENTIAL PHASE AND GAIN HAVE BEEN NOTED, BUT IT WAS NOT BEEN POSSIBLE TO ISOLATE THE CAUSE OF THE CHANGES. THE VARIATIONS IN THE DIFFERENTIAL PHASE AND GAIN DO NOT SEEM TO ALTER APPRECIABLY THE SUBJECTIVE QUALITY OF THE COLOR PICTURES.

SUBJECT: BROADCASTING

KEYWORDS: BRITISH BROADCASTING CORPORATION; OLYMPICS; MEXICO; ATS-3; TELEVISION; LONDON

TECHNICAL REPORT NUMBER: 6.81(69) UNIVERSITY OF DAYTON ACCESS NUMBER: 58

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DATE OF DOCUMENT/TYPE: MAY 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: REPORT ON ALASKA USE OF THE ATS-1 SATELLITE

AUTHOR: BJCK, D.L.: NORTHPIF, C.H.

SPONSORING AGENCY: STATE OF ALASKA

SATELLITE: ATS-1 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: 1971-1972

OBJECT OF EXPERIMENT: THE STATE OF ALASKA'S SPECIFIC GOALS AND OBJECTIVES WITH REGARD TO THE USE OF THE ATS-1 SATELLITE ARE EASILY STATED IN OUTLINE FORM:

- TO GAIN EXPERIENCE IN THE USE OF A MEDICAL, EDUCATIONAL, AND INFORMATIONAL INTERCHANGE BETWEEN REMOTE AND URBAN LOCATIONS.
- TO ISOLATE THE ADVANTAGES OF SATELLITE TELECOMMUNICATIONS RELIABLE SHIP-TO-SHORE COMMUNICATIONS AND NAVIGATION.
- TO DEVELOP IN-HOUSE (IN ALASKA) SATELLITE COMMUNICATIONS

ABSTRACT: IN THE FALL OF 1969, THE STATE OF ALASKA RESPONDED TO AN OFFER BY NASA FOR THE USE OF THE ATS-1 SATELLITE FOR ADDITIONAL EXPERIMENTATION BY REQUESTING THE USE OF THAT SPACECRAFT FOR A NUMBER OF EDUCATIONAL, INFORMATIONAL AND HEALTH PURPOSES. IN THE SPRING OF 1971, NASA APPROVED THE STATE'S PROPOSAL FOR THE USE OF ATS-1. THERE FOLLOWED A YEAR OF EQUIPMENT PURCHASING AND TESTING, UTILIZING THE ATS-1 SATELLITE. BY THE FALL OF 1971, SEVERAL SPECIFIC EXPERIMENTS HAD BEEN IDENTIFIED AND PREPARED FOR, WHICH WOULD UTILIZE THE ATS-1 SATELLITE. IN JUNE OF 1971, REGULAR RADIO NETWORKING WAS INSTITUTED BETWEEN NATIONAL PUBLIC RADIO AND THE UNIVERSITY OF ALASKA RADIO STATION, KUAZFM. IN SEPTEMBER OF THAT SAME YEAR, EXPERIMENTS PROVIDING BIOMEDICAL COMMUNICATION TO ALASKA'S REMOTE AREAS AND A SCHOOL SYSTEM UTILIZING THE BIOMEDICAL EQUIPMENT TO PROVIDE EDUCATIONAL ASSISTANCE WERE INSTITUTED. THE ALASKA ATS-1 PROJECT DURING 1971-72 WAS COMPOSED OF THREE DISTINCT AND SEPARATE EXPERIMENTS. A GOOD DEAL OF INFORMAL COORDINATION AND COOPERATION WAS ACHIEVED AMONG THE THREE EXPERIMENTS, PARTICULARLY AS NOTED ABOVE, BETWEEN THE EDUCATIONAL AND BIOMEDICAL EXPERIMENTS. IN EVERY VILLAGE SERVED BY THE BIOMEDICAL EXPERIMENT, A REMOTE AMPLIFIER AND SPEAKER WERE INSTALLED IN THE SCHOOL FACILITY SO THAT THE EDUCATIONAL EXPERIMENT SERVED SCHOOLS IN EVERY BIOMEDICAL EXPERIMENT VILLAGE. THE PUBLIC RADIO EXPERIMENT UTILIZED RECEIVING EQUIPMENT AT THE COLLEGE, ALASKA HEADQUARTERS FOR THE BIOMEDICAL EXPERIMENT. BECAUSE OF THE EQUIPMENT SHARING NOTED ABOVE, FREQUENT INFORMAL CONTACT AMONG EXPERIMENTERS WAS ESSENTIAL.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ALASKA: ATS-1: EDUCATION: BIOMEDICAL: COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 61

**DATE OF DOCUMENT/TYPE:** AUG 73 / TECHNICAL REPORT

**TITLE OF DOCUMENT:** PROPOSAL FOR THE CONTINUED USE OF NASA'S ATS-1 SATELLITE FOR ALASKA

**AUTHOR:** BUCK, C L; NORTHROP, C M

**SATELLITE:** ATS-1 **COMMUNICATIONS:** VHF **EXPERIMENT PERIOD:** OCT 72 - SEP 73

**OBJECT OF EXPERIMENT:** THE GOALS AND OBJECTIVES OF THE ALASKA ATS-1 PROJECT REMAIN THE SAME AS THOSE LISTED IN THE REPORT ON ATS-1 ACTIVITIES IN 1971-1972:  
 A. TO GAIN EXPERIENCE IN THE USE OF A MEDICAL, EDUCATIONAL, AND INFORMATIONAL INTERCHANGE BETWEEN REMOTE AND URBAN LOCATIONS.  
 B. TO ISOLATE THE ADVANTAGES OF SATELLITE TELECOMMUNICATIONS  
 C. TO DEVELOP IN-HOUSE (IN ALASKA) SATELLITE COMMUNICATIONS COMPETENCE.

**ABSTRACT:** THE CHRONIC NEED FOR IMPROVED COMMUNICATION CAPABILITY IN ALASKA HAS BEEN DOCUMENTED IN THE "REPORT ON ALASKA USE OF THE ATS-1 SATELLITE, THROUGH SEPTEMBER 30, 1972," SUBMITTED TO NASA BY THE GOVERNOR'S OFFICE OF TELECOMMUNICATIONS. THAT REPORT POINTED OUT CERTAIN DEFICIENCIES IN ALASKA'S USE OF THE ATS-1 SATELLITE IN THE PERIOD 1971-1972. THIS DOCUMENT PROPOSES TO MAKE THE NECESSARY CHANGES MANDATED BY THE ABOVE REPORT.  
 SPECIFICALLY, ALASKA'S USE OF THE ATS-1 SATELLITE IN 1972-1973 WILL BE MARKED BY THE FOLLOWING:

1. A MORE UNIFIED ORGANIZATIONAL SCHEME WILL BE ORGANIZED,
2. A CONTROL AND REPORTING SYSTEM WILL BE DESIGNED,
3. THE RELATIONSHIP BETWEEN THE ATS-1 EXPERIMENT IN ALASKA AND FUTURE SATELLITE EXPERIMENTS OF OTHER OPERATIONAL SYSTEMS WILL BE CLARIFIED.

**PUBLIC RADIO --** PUBLIC RADIO IS TAKEN FIRST IN THIS DOCUMENTATION OF HOW EACH EXPERIMENT WILL CONTRIBUTE TO THE OVERALL OBJECTIVES, BECAUSE IT MAY CONCLUDE ITS ACTIVITY BEFORE THE END OF THE 1972-1973 PROPOSED PERIOD.

**MEDICAL EXPERIMENT --** DURING THE FIRST YEAR OF OPERATIONS OF THE ALASKAN MEDICAL EXPERIMENT ON ATS-1, A CONSIDERABLE NUMBER OF EXPERIMENTS HAVE BEEN CONDUCTED. THESE INCLUDE "DOCTOR CALL," CONTINUING EDUCATION OF PHYSICIANS, PROPAGATION STUDIES, LECTURES TO STUDENTS, COMMUNITY HEALTH EDUCATION, TELEMETRY OF PHYSIOLOGICAL DATA, AND PHYSICIAN-TO-PHYSICIAN CONSULTATION.

**SUBJECT:** BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
 MEDICAL/HEALTH APPLICATIONS

**KEYWORDS:** ALASKA; ATS-1

UNIVERSITY OF DAYTON ACCESS NUMBER: 62

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DATE OF DOCUMENT/TYPE: AUG 73 / PROGRESS REPORT

TITLE OF DOCUMENT: SUPPLEMENTAL EVALUATION REPORT: PANPACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE--VOLUME I

AUTHOR: SYSTEM, J W: MISKI, C

SPONSORING AGENCY: UNIVERSITY OF HAWAII

SATELLITE: ATS-1 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: JAN 71 - AUG 73

OBJECT OF EXPERIMENT: THE OBJECTIVE OF THE PEACESAT PROJECT IS TO DETERMINE THE UTILITY OF SATELLITE COMMUNICATION RELAY FOR IMPROVING THE QUALITY OF EDUCATION AND HEALTH CARE IN THE PACIFIC BASIN AND FACILITATING THE SAVING OF COSTLY RESOURCES AND IMPROVING PROFESSIONAL SERVICES.

ABSTRACT: THIS SUPPLEMENT PROVIDES DETAIL ON EVALUATION ACTIVITIES UNDERTAKEN PRIOR TO AUGUST 1973 AS PART OF THE PEACESAT PROJECT. IT IS AN ADDITION TO THE 1973 NASA REPORT AND REQUEST. SECTION 7.5 OF THE REPORT DESCRIBES THE PHILOSOPHY OF EVALUATION AND THE GENERAL METHODOLOGY TO BE USED.

PHASE I OF THE PEACESAT PROJECT SAW THE CONSTRUCTION AND TESTING OF THE BASIC TECHNOLOGY. PHASE II SAW THE DEVELOPMENT OF AN INTERNATIONAL DEMONSTRATION EDUCATION SATELLITE COMMUNICATION SYSTEM. IN PHASE III IT WAS INTENDED TO EXPERIMENT WITH THE APPLICATION OF THE SYSTEM.

THE PERIOD FROM JANUARY TO JUNE 1973 WAS SET ASIDE FOR THE DEVELOPMENT AND TESTING OF TECHNIQUES OF EVALUATION TO BE INCORPORATED INTO AN EVALUATION PLAN FOR A PERIOD BEGINNING JULY 1973. THE CONSTRAINTS OF GEOGRAPHY, INCOME, EXPERTISE AND SKILL, CULTURALLY MIXED POPULATIONS MAKE IT DIFFICULT OR IMPOSSIBLE TO USE EVALUATIONAL METHODOLOGY DEVELOPED FOR CLASSROOMS AND URBAN ENVIRONMENTS. TECHNIQUES MUST BE MODIFIED IN MOST INSTANCES TO SUIT THE UNUSUAL PACIFIC ENVIRONMENT.

THE SHORT PERIODS FOR WHICH SATELLITE TIME CAN BE RESERVED LIMITS THE EXTENT OF ADVANCE PREPARATION, THE DEGREE OF CONTROL OVER THE EXPERIMENTAL SITUATION, AND THE AMOUNT OF RESOURCES COMMITTED TO EVALUATION ACTIVITY.

UNCERTAINTY OF CONTINUED SATELLITE USED, AND TERMINATION OF HAWAII FUNDING ON JULY 1, REDUCED RESOURCES AND HAS DIVERTED PROGRAM EFFORT. NEVERTHELESS, WE HAVE COLLECTED A BODY OF DATA BASIC TO POST EXPERIMENT EVALUATION. A SERIES OF PILOT EVALUATIVE ACTIVITIES HAS BEEN COMPLETED, AND A STRUCTURED PLAN FOR EVALUATION IN SUBSEQUENT MONTHS, INCLUDING SELECTED RESEARCH INSTRUMENTS, HAS BEEN FORMULATED.

THE FUNDAMENTAL PURPOSE OF THE DEMONSTRATION IS TO PROVIDE INFORMATION WHICH WILL AID IN ANSWERING THE QUESTION:

"CAN A SATELLITE COMMUNICATION SYSTEM BE DESIGNED AND ACCEPTED WHICH MEETS BASIC SOCIAL REQUIREMENTS IN SPARSELY POPULATED AND LESS DEVELOPED AREAS?"

THE PURPOSE OF EVALUATION OF PEACESAT EXPERIENCE IS TO PROVIDE DATA ON COMMUNICATION METHODS FOR DECISION MAKERS CONCERNED WITH THE SOCIAL PROBLEMS OF THE PACIFIC AND GUIDANCE IN FUTURE PLANNING THROUGHOUT LESS DEVELOPED AREAS OF THE WORLD.

THE PROJECT IS CROSS CULTURAL (CURRENTLY INVOLVING SEVEN PACIFIC NATIONS AND TERRITORIES), RELIES ON LOCAL INITIATIVE FOR TERMINAL MANAGEMENT, OPERATIONS, AND FINANCING, AND UTILIZES LOW-COST TECHNOLOGY FOR A NEW TYPE OF TELECOMMUNICATION SYSTEM.

THE RESEARCH FRAMEWORK OF THE PEACESAT PROJECT HAS TWO LEVELS OF EXPERIMENTATION AND THE PILOT DEMONSTRATION SATELLITE COMMUNICATION SYSTEM IS BASIC TO BOTH. AT ONE LEVEL WE VIEW THE PILOT SYSTEM ITSELF AS AN EXPERIMENT, AT A SECOND LEVEL THE SYSTEM OPERATES AS A TEST BED FOR EXPERIMENTS WHICH DEVELOP KNOWLEDGE OF USER APPLICATION AND EFFECTIVENESS.

RESEARCH ACTIVITIES, INCLUDING DESCRIPTIVE STUDIES, FIELD EXPERIMENTS, AND EVALUATION, MAY BE GROUPED INTO: (A) THOSE ACTIVITIES DEFINING REQUIREMENTS FOR TELECOMMUNICATIONS; (B) THOSE TESTING THE PERFORMANCE AND WORKABILITY OF THE COMMUNICATION EQUIPMENT IN THE SYSTEM; (C) THOSE MEASURING AND EVALUATING THE EFFECTIVENESS OF THE SYSTEM IN MEETING NEEDS; AND (D) THOSE EXPERIMENTS DESIGNED TO DEVELOP AND TEST NEW APPLICATIONS OF THE SYSTEM.

THE COLLECTION OF ATTACHED STUDIES IS GROUPED UNDER THESE CATEGORIES IN PAGES THAT FOLLOW.

LISTING OF EVALUATIVE AND DESCRIPTIVE REPORTS

A. REQUIREMENTS FOR COMMUNICATION

A NUMBER OF STUDIES HAVE BEEN DIRECTED AT DETERMINING TELECOMMUNICATION NEEDS OF HEALTH, EDUCATION, AND COMMUNITY SERVICES IN THE PACIFIC BASIN. WITH THE ASSISTANCE OF THE LISTER HILL CENTER (NLM-NIM-NIM-NIM) STUDIES OF LIBRARY AND HEALTH SERVICES HAVE BEEN MADE. REQUIREMENTS STUDIES ARE NEEDED FOR OTHER SOCIAL FUNCTIONS.

1. MEDICAL COMMUNICATION REQUIREMENTS: US PACIFIC
2. LIBRARY STATUS: US PACIFIC AND SELECTED PACIFIC AREAS
3. EVALUATION REPORT 22: PACIFIC LIBRARY CONFERENCES
4. HEALTH CARE STATUS: SELECTED PACIFIC AREAS
5. HEALTH CARE STATUS: US PACIFIC AND STATE OF HAWAII
6. EVALUATION REPORT 7: FIRST YEAR MEDICAL USER DEMONSTRATIONS
7. EVIDENCE OF PROJECT SUPPORT AND APPROVAL
8. SYSTEM PERFORMANCE AND EFFECTIVENESS STUDIES
9. USER PRACTICES: POST EXPERIMENT USER REVIEW, EXCHANGE PROCEEDINGS, AND USER STATEMENTS
10. TECHNICAL AND OPERATIONAL PERFORMANCE
  - WILL EQUIPMENT AND PERSONNEL FUNCTION EFFECTIVELY IN THE ENVIRONMENT OF THE PACIFIC BASIN? CAN ARRANGEMENTS MEET THE NEEDS OF THE SOCIAL SERVICES WITHIN COST AND MANPOWER LIMITATIONS? THE MEASURES OF EFFECTIVENESS USED ARE DEPENDENT LARGELY ON HUMAN RESPONSE SUPPORTED BY TECHNICAL TESTS. AN INCREASED EFFORT IS PLANNED AT STRUCTURED STUDIES OF PERFORMANCE WITH CRITERIA BASED ON USER SATISFACTION. NEW MORE SOPHISTICATED TEST EQUIPMENT IS EXPECTED TO BE AVAILABLE.

1. EVALUATION REPORT 11: SIGNAL RECEPTION REPORT
2. EVALUATION REPORT 21: MEDICAL SENSORY DATA TRANSMISSION TESTS
3. REPORT AND REQUEST TO NASA: TECHNICAL PERFORMANCE SUMMARIES
4. EVALUATION REPORT 16: MEDICAL RESEARCH APPLICATIONS
11. SYSTEM EFFECTIVENESS
  - EVALUATION IS DESIRABLE TO ANSWER THE QUESTIONS: WILL THE SYSTEM WORK? IS THE SYSTEM ACCEPTABLE TO USERS? INFORMATION IS NEEDED TO DETERMINE IF A NUMBER OF COUNTRIES AND A NUMBER OF USER ORGANIZATIONS CAN WORK TOGETHER TO PROVIDE REQUIRED COMMUNICATION RESOURCES.

1. EVALUATION REPORT 11: USER EVALUATION QUESTIONNAIRE
2. EVALUATION REPORT 21: COMMUNICATION EFFECTS STUDY
3. EVALUATION REPORT 24: TIME USE REVIEW
4. EVALUATION REPORT 41: TRAFFIC REVIEW
5. EVALUATION REPORT 24: USER GUIDELINES
12. COMMUNICATIONS APPLICATIONS

THE EVALUATION OF USER ACTIVITIES HAS SEVERAL OBJECTIVES. KNOWLEDGE OF THE BENEFITS TO BE OBTAINED THROUGH USE OF THE SYSTEM BY HEALTH, EDUCATION, AND COMMUNITY SERVICES IN THE PACIFIC BASIN IS DETERMINED. FROM THE POSITION OF SYSTEM DEVELOPMENT, HOWEVER, THE PRIMARY PURPOSE OF EVALUATION IS TO DETERMINE THE EXTENT TO WHICH EXISTING ORGANIZATIONS WILL PRODUCE TRAFFIC AND UNDER WHAT CONDITIONS.

1. EVALUATION REPORT 11: AGRICULTURAL EXTENSION
2. EVALUATION REPORT 11: AGRICULTURAL EXTENSION
3. EVALUATION REPORT 12: MODEL UNITED NATIONS
4. EVALUATION REPORT 13: AMERICAN FIELD SERVICE
5. EVALUATION REPORT 14: TEACHING OF LAW
6. EVALUATION REPORT 15: COMPARATIVE PACIFIC EDUCATION
7. EVALUATION REPORT 21: CLASSROOM INTERACTION - SATELLITE INTERPOSED
8. EVALUATION REPORT 21: SPEECH COMMUNICATION
9. EVALUATION REPORT 16: INSTRUCTION BY SATELLITE
10. EVALUATION REPORT 16: TONGAN SECONDARY SCHOOL AGRICULTURAL EDUCATION
11. EVALUATION REPORT 17: COMMUNICATION EFFECTS RESEARCH
12. EVALUATION REPORT 19: COMPARATIVE PACIFIC EDUCATION
13. EVALUATION REPORT 20: PACIFIC ENVIRONMENTAL EDUCATION

13. EVALUATION REPORT 21: PACIFIC PRESS CONFERENCE  
14. EVALUATION REPORT 23: PACIFIC POETS

SUBJECT:

BROADCASTING  
EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS

DATA TRANSMISSION  
LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS

KEYWORDS:

PEACE: ATS-1: CLASSROOM: UNIVERSITY OF HAWAII: PACIFIC: MEDICAL COMMUNICATIONS: HEALTH: AGRICULTURE: AMERICAN FIELD SERVICE: UNITED NATIONS: LAW

UNIVERSITY OF DAYTON ACCESS NUMBER: 66

DATE OF DOCUMENT/TYPE: AUG 73 / PROGRESS REPORT

TITLE OF DOCUMENT: SUPPLEMENTAL EVALUATION REPORT: PANPACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE---  
VOLUME II

AUTHOR: BYSTROM, J W; WISKI, C

SPONSORING AGENCY: UNIVERSITY OF HAWAII

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: JAN 71 - AUG 73

SUBJECT OF EXPERIMENT: THE OBJECTIVE OF THE PEACESAT PROJECT IS TO DETERMINE THE UTILITY OF SATELLITE COMMUNICATION RELAY FOR INCREASING THE QUALITY OF EDUCATION AND HEALTH CARE IN THE PACIFIC BASIN AND FACILITATING THE SAVING OF COSTLY RESOURCES AND IMPROVING PROFESSIONAL SERVICES.

# ABSTRACT:

THIS SUPPLEMENT PROVIDES DETAIL ON EVALUATION ACTIVITIES UNDERTAKEN PRIOR TO AUGUST 1973 AS PART OF THE PEACESAT PROJECT. IT IS AN ADDITION TO THE 1971 NASA REPORT AND REQUEST. SECTION 7.4 OF THAT REPORT DESCRIBES THE PHILOSOPHY OF EVALUATION AND THE GENERAL METHODOLOGY TO BE USED.

PHASE I OF THE PEACESAT PROJECT SAW THE CONSTRUCTION AND TESTING OF THE BASIC TECHNOLOGY. PHASE II SAW THE DEVELOPMENT OF AN INTERNATIONAL DEMONSTRATION EDUCATION SATELLITE COMMUNICATION SYSTEM. IN PHASE III IT WAS INTENDED TO EXPERIMENT WITH THE APPLICATION OF THE SYSTEM.

THE PERIOD FROM JANUARY TO JUNE 1973 WAS SET ASIDE FOR THE DEVELOPMENT AND TESTING OF TECHNIQUES OF EVALUATION TO BE INCORPORATED INTO AN EVALUATION PLAN FOR A PERIOD BEGINNING JULY 1973. THE CONSTRAINTS OF GEOGRAPHY, INCOME, EXPERIENCE AND SMALL, CULTURALLY MIXED POPULATIONS MAKE IT DIFFICULT OR IMPOSSIBLE TO USE EVALUATIONAL METHODOLOGY DEVELOPED FOR CLASSROOM AND URBAN ENVIRONMENTS. TECHNIQUES MUST BE MODIFIED IN MOST INSTANCES TO SUIT THE UNUSUAL PACIFIC ENVIRONMENT.

THE SHORT PERIODS FOR WHICH SATELLITE TIME CAN BE RESERVED LIMITS THE EXTENT OF ADVANCE PREPARATION, THE DEGREE OF CONTROL OVER THE EXPERIMENTAL SITUATION, AND THE AMOUNT OF RESOURCES COMMITTED TO EVALUATION ACTIVITY.

UNCERTAINTY OF CONTINUED SATELLITE USE, AND TERMINATION OF HAWAII FUNDING ON JULY 1, REDUCED RESOURCES AND HAS DERIVED PROGRAM EFFORT. NEVERTHELESS, WE HAVE COLLECTED A BODY OF DATA BASIC TO POST EXPERIMENT EVALUATION. A SERIES OF PILOT EVALUATIVE ACTIVITIES HAS BEEN COMPLETED, AND A STRUCTURED PLAN FOR EVALUATION IN SUBSEQUENT MONTHS, INCLUDING SELECTED RESEARCH INSTRUMENTS, HAS BEEN FORMULATED.

THE FUNDAMENTAL PURPOSE OF THE DEMONSTRATION IS TO PROVIDE INFORMATION WHICH WILL AID IN ANSWERING THE QUESTIONS:

"CAN A SATELLITE COMMUNICATION SYSTEM BE DEvised AND ADOPTED WHICH MEETS BASIC SOCIAL REQUIREMENTS IN SPARSELY POPULATED AND LESS DEVELOPED AREAS?"

THE PURPOSE OF EVALUATION OF PEACESAT EXPERIENCE IS TO PROVIDE DATA ON COMMUNICATION METHODS FOR DECISION MAKERS CONCERNED WITH THE SOCIAL PROBLEMS OF THE PACIFIC AND GUIDANCE IN FUTURE PLANNING THROUGHOUT LESS DEVELOPED AREAS OF THE WORLD.

THE PROJECT IS CROSS CULTURAL (CURRENTLY INVOLVING SEVEN PACIFIC NATIONS AND TERRITORIES), RELIES ON LOCAL INITIATIVE FOR TECHNICAL MANAGEMENT, OPERATIONS, AND FINANCING, AND UTILIZES LOW-COST TECHNOLOGY FOR A NEW TYPE OF TELECOMMUNICATION SYSTEM.

THE RESEARCH FRAMEWORK OF THE PEACESAT PROJECT HAS TWO LEVELS OF EXPERIMENTATION AND THE PILOT DEMONSTRATION SATELLITE COMMUNICATION SYSTEM IS BASIC TO BOTH. AT ONE LEVEL WE VIEW THE PILOT SYSTEM ITSELF AS AN EXPERIMENT. AT A SECOND LEVEL THE SYSTEM OPERATES AS A TEST BED FOR EXPERIMENTS WHICH DEVELOP KNOWLEDGE OF USER APPLICATION AND EFFECTIVENESS.

RESEARCH ACTIVITIES, INCLUDING DESCRIPTIVE STUDIES, FIELD EXPERIMENTS, AND EVALUATION, MAY BE GROUPED INTO (1) THOSE ACTIVITIES DEFINING REQUIREMENTS FOR TELECOMMUNICATIONS (2) THOSE TESTING THE PERFORMANCE AND RELIABILITY OF THE COMMUNICATION EQUIPMENT IN THE SYSTEM (3) THOSE MEASURING AND EVALUATING THE EFFECTIVENESS OF THE SYSTEM IN MEETING NEEDS; AND (4) THOSE EXPERIMENTS DESIGNED TO DEVELOP AND TEST NEW APPLICATIONS OF THE SYSTEM.

THE COLLECTION OF ATTACHED STUDIES IS GROUPED UNDER THESE CATEGORIES IN PAGES THAT FOLLOW.

LISTING OF EVALUATIVE AND DESCRIPTIVE REPORTS

A. REQUIREMENTS FOR COMMUNICATION

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A NUMBER OF STUDIES HAVE BEEN DIRECTED AT DETERMINING TELECOMMUNICATION NEEDS OF HEALTH, EDUCATION, AND COMMUNITY SERVICES IN THE PACIFIC BASIN. WITH THE ASSISTANCE OF THE LISTER HILL CENTER (NLM-NIH-NHM) STUDIES OF LIBRARY AND HEALTH SERVICES HAVE BEEN MADE: REQUIREMENTS STUDIES ARE NEEDED FOR OTHER SOCIAL FUNCTIONS.

1. MEDICAL COMMUNICATION REQUIREMENTS: US PACIFIC
  2. LIBRARY STATUS: US PACIFIC AND SELECTED PACIFIC AREAS
  3. EVALUATION REPORT 32: PACIFIC LIBRARY CONFERENCES
  4. HEALTH CARE STATUS: SELECTED PACIFIC AREAS
  5. HEALTH CARE STATUS: US PACIFIC AND STATE OF HAWAII
  6. EVALUATION REPORT 7: FIRST YEAR MEDICAL USER DEMONSTRATIONS
  7. EVIDENCE OF PROJECT SUPPORT AND APPROVAL
  8. SYSTEM PERFORMANCE AND EFFECTIVENESS STUDIES
  9. USER REACTIONS: POST EXPERIMENT USER-REVIEW, EXCHANGE PROCEEDINGS, AND USER STATEMENTS
  9. TECHNICAL AND OPERATIONAL PERFORMANCE
- WILL EQUIPMENT AND PERSONNEL FUNCTION EFFECTIVELY IN THE ENVIRONMENT OF THE PACIFIC BASIN? CAN ARRANGEMENTS MEET THE NEEDS OF THE SOCIAL SERVICES WITHIN COST AND MANPOWER LIMITATIONS? THE MEASURES OF EFFECTIVENESS USED ARE DEPENDENT LARGELY ON HUMAN RESPONSE SUPPORTED BY TECHNICAL TESTS. AN INCREASED EFFORT IS PLANNED AT STRUCTURED STUDIES OF PERFORMANCE WITH CRITERIA BASED ON USER SATISFACTION. NEW MORE SOPHISTICATED TEST EQUIPMENT IS EXPECTED TO BE AVAILABLE.

1. EVALUATION REPORT 31: SIGNAL RECEPTION REPORT
  2. EVALUATION REPORT 51: BIOMEDICAL SENSORY DATA TRANSMISSION TESTS
  3. REPORT AND REQUEST TO NASA: TECHNICAL PERFORMANCE SUMMARIES
  4. EVALUATION REPORT 16: MEDICAL RESEARCH APPLICATIONS
  2. SYSTEM EFFECTIVENESS
- EVALUATION IS DESIRABLE TO ANSWER THE QUESTIONS: WILL THE SYSTEM WORK? IS THE SYSTEM ACCEPTABLE TO USERS? INFORMATION IS NEEDED TO DETERMINE IF A NUMBER OF COUNTRIES AND A NUMBER OF USER ORGANIZATIONS CAN WORK TOGETHER TO PROVIDE REQUIRED COMMUNICATION RESOURCES.

1. EVALUATION REPORT 11: USER EVALUATION QUESTIONNAIRE
  2. EVALUATION REPORT 21: COMMUNICATION AFFECTS STUDY
  3. EVALUATION REPORT 51: TIME USE REVIEW
  4. EVALUATION REPORT 41: TRAFFIC REVIEW
  5. EVALUATION REPORT 24: USER GUIDELINES
  3. COMMUNICATIONS APPLICATIONS
- THE EVALUATION OF USER ACTIVITIES HAS SEVERAL OBJECTIVES. KNOWLEDGE OF THE BENEFITS TO BE OBTAINED THROUGH USE OF THE SYSTEM BY HEALTH, EDUCATION, AND COMMUNITY SERVICES IN THE PACIFIC SHOULD BE DETERMINED. FROM THE POSITION OF SYSTEM DEVELOPMENT, HOWEVER, THE PRIMARY PURPOSE OF EVALUATION IS TO DETERMINE THE EXTENT TO WHICH EXISTING ORGANIZATIONS WILL PRODUCE TRAFFIC AND UNDER WHAT CONDITIONS.

1. EVALUATION REPORT 11: AGRICULTURAL EXTENSION
2. EVALUATION REPORT 11: AGRICULTURAL EXTENSION
3. EVALUATION REPORT 12: MOCK UNITED NATIONS
4. EVALUATION REPORT 13: AMERICAN FIELD SERVICE
5. EVALUATION REPORT 14: TEACHING OF LAW
6. EVALUATION REPORT 15: COMPARATIVE PACIFIC EDUCATION
7. EVALUATION REPORT 61: CLASSROOM INTERACTION - SATELLITE INTERPOSED
8. EVALUATION REPORT 61: SPEECH COMMUNICATION INSTRUCTION BY SATELLITE
9. EVALUATION REPORT 161: TONGAN SECONDARY SCHOOL AGRICULTURAL EDUCATION
17. EVALUATION REPORT 171: COMMUNICATION EFFECTS RESEARCH
11. EVALUATION REPORT 191: COMPARATIVE PACIFIC EDUCATION
12. EVALUATION REPORT 21: PACIFIC ENVIRONMENTAL EDUCATION

13. EVALUATION REPORT 21: PACIFIC PRESS CONFERENCE  
14. EVALUATION REPORT 23: PACIFIC POETS

**SUBJECT:**

BROADCASTING  
EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS

DATA TRANSMISSION  
LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS

**KEYWORDS:**

PEACESAT: ATE-1: CLASSROOM: UNIVERSITY OF HAWAII: PACIFIC: MEDICAL COMMUNICATIONS: HEALTH: AGRICULTURE: AMERICAN FIELD SERVICE: UNITED NATIONS: LAW

UNIVERSITY OF DAYTON ACCESS NUMBER: 67

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DATE OF DOCUMENT/TYPES: MAY 74 /

TITLE OF DOCUMENT: PACIFIC SATELLITE HEALTH INFORMATION STUDY--FINAL REPORT

AUTHOR: BYSTROM, J M

SPONSORING AGENCY: UNIVERSITY OF HAWAII

SATELLITE: ATS-1

COMMUNICATIONS: VHF

EXPERIMENT PERIOD: MAY '72 - AUG '73

OBJECT OF EXPERIMENT: TO ASSIST DEVELOPMENT OF EFFECTIVE MEDICAL AND HEALTH INFORMATION TRANSFER IN THE U.S. PACIFIC AND CONTRIBUTE EXPERIENCE TO THE DESIGN OF FUTURE HEALTH COMMUNICATIONS SUITED TO AREAS OF THE WORLD WITH LOW POPULATION OR LIMITED INDUSTRY AND RESOURCES.

ABSTRACT: THE FOLLOWING RESULTS ARE REPORTED: (1) DEVELOPMENT OF A STUDY ENVIRONMENT IN THE PACIFIC AND FORMATION OF COMMITTEES FOR HEALTH INFORMATION AND EVALUATION. (2) STUDIES WERE COMPLETED ON MEDICAL COMMUNICATION REQUIREMENTS, HEALTH CARE STATUS AND STATUS OF LIFELINES IN THE U.S. AND RELATED AREAS OF THE PACIFIC. (3) DEMONSTRATION SATELLITE GROUND TERMINALS WERE CONSTRUCTED AT SAIPAN, TITOI AND IN AMERICAN SAMOA. (4) BIOLOGICAL DATA TRANSMISSION TESTS WERE UNDERTAKEN BETWEEN REMOTE LOCATIONS USING THE VOICE GRADE SATELLITE CIRCUIT. (5) PILOT DEMONSTRATIONS OF SATELLITE COMMUNICATIONS WERE MADE FOR ADMINISTRATIVE PLANNING, DIAGNOSTIC CONSULTING, RESEARCH, PATIENT REFERRALS AND TRAINING AND INSTRUCTION. USER REACTIONS WERE COLLECTED AND ANALYZED. (6) FOLLOW-ON PILOT HEALTH INFORMATION SYSTEMS WERE PLANNED: A TEST SYSTEM FOR EXCHANGE OF LIBRARY MATERIALS AND A GROUND TERMINAL SYSTEM LINKING DIST-ICT CENTERS OF THE TRUST TERRITORY OF THE PACIFIC ISLANDS.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: PEACESAT; UNIVERSITY OF HAWAII; HEALTH; MEDICAL SERVICES; ELECTROCARDIOGRAM; GLOBAL COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 58

DATE OF DOCUMENT/TYPE: JUNE 78 / TECHNICAL REPORT

TITLE OF DOCUMENT: AN AUTOMATED TECHNIQUE FOR OBTAINING CLOUD MOTION FROM GEOSYNCHRONOUS SATELLITE DATA USING CROSS CORRELATION

AUTHOR: LEESE, J A; NOVAK, C S

SPONSORING AGENCY: NATIONAL ENVIRONMENTAL SATELLITE CENTER

SATELLITE: ATS-1 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: APR 69 - APR 78

OBJECT OF EXPERIMENT: TO DETERMINE CLOUD MOTION FROM GEOSYNCHRONOUS SATELLITE

ABSTRACT: AN AUTOMATED PROCEDURE HAS BEEN DEVELOPED FOR DETERMINING CLOUD MOTION FROM GEOSYNCHRONOUS SATELLITE PICTURES BASED ON THE USE OF CROSS CORRELATION. THE SPEED REQUIRED FOR USE IN A REAL-TIME OPERATIONAL SYSTEM IS ATTAINED BY APPLICATION OF THE FAST FOURIER TRANSFORM AS A COMPUTATION ALGORITHM IN DETERMINING THE CROSS-CORRELATION COEFFICIENTS. THE INPUT DATA CONSISTS OF A PAIR OF PICTURES FROM THE APPLICATIONS TECHNOLOGY SATELLITE ATS-1 TAKEN 24 MINUTES APART AND MAPPED ON A MERCATOR PROJECTION. RELATIVE MAPPING ERRORS ARE AUTOMATICALLY CORRECTED BY MATCHING COMMON LANDMARKS ON THE TWO PICTURES.

A SAMPLE OF 31 VECTORS DETERMINED FROM LOW-LEVEL CLOUDS WAS COMPARED WITH THOSE OBTAINED BY MANUAL METHODS IN A NONOPERATIONAL ENVIRONMENT.

WITH MULTIPLE CLOUD LAYERS, THE ABILITY TO DETERMINE THE INDIVIDUAL MOTIONS IS DEPENDENT UPON THE STRUCTURE OF THE PATTERN IN EACH LAYER AS WELL AS THE DIFFERENCE IN SPEED BETWEEN THE LAYERS AND THE AMOUNT AND DENSITY OF THE UPPER LAYER.

TEST RESULTS TO DATE INDICATE THAT A COMBINATION OF THE MANUAL AND AUTOMATED TECHNIQUES PROVIDES THE BEST OPERATIONAL SOLUTION TO OBTAINING CLOUD MOTION VECTORS FROM GEOSYNCHRONOUS SATELLITE DATA.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; CLOUD MOTION

JOURNAL TITLE: JOURNAL OF APPLIED METEOROLOGY, VOLUME 18, ISSUE 2, PAGES 118-132

UNIVERSITY OF DAYTON ACCESS NUMBER: 71

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DATE OF DOCUMENT/TYPE: FEB 71 / JOURNAL ARTICLE

TITLE OF DOCUMENT: USE OF A PATTERN RECOGNITION TECHNIQUE FOR DETERMINING CLOUD MOTIONS FROM SEQUENCES OF SATELLITE PHOTOGRAPHS

AUTHOR: ENGLISH, R.M.; WOLF, D.E.; HALL, D.J.; BRAIN, A.E.

SPONSORING AGENCY: STANFORD RESEARCH INSTITUTE, STANFORD, CALIFORNIA

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO DETERMINE CLOUD MOTION THROUGH THE USE OF PATTERN RECOGNITION TECHNIQUES AND COMPUTER METHODS FOR FINDING CENTERS OF BRIGHTNESS.

ABSTRACT: THIS PAPER DESCRIBES SOME COMPUTER TECHNIQUES THAT HAVE BEEN USED TO OBJECTIVELY REPRESENT CLOUD PATTERNS USING CENTERS OF BRIGHTNESS, AND TO TRACK THESE CENTERS. THE TECHNIQUES ARE ILLUSTRATED FOR CERTAIN PATTERN TYPICAL CLOUD MASSES. REQUIREMENTS FOR FURTHER TESTING OF THE METHODS, AND POSSIBILITIES FOR INCLUDING INFRARED DATA ARE ALSO DISCUSSED.

CONCLUSION: THIS STUDY INDICATES THAT CLOUD MOTIONS DEPICTED BY RECENT OBSERVATIONS OF CLOUD POSITIONS AND BRIGHTNESS FROM ATS GEOSYNCHRONOUS SATELLITES CAN BE PROCESSED BY COMPUTER TO QUANTITATIVELY MEASURE THE MOTIONS. THE APPROACH TAKEN HAS PERMITTED ACCURATE GEOGRAPHIC REGISTRATION OF ATS PICTURES, AND CONCURRENT DIGITIZING OF SELECTED PORTIONS OF DATA FOR TESTING. THE CLOUD MOTIONS OBTAINED ARE IN QUALITATIVE AGREEMENT WITH MOTIONS SEEN BY TIME-LAPSE VIEWING BY EYE USING A TV DISPLAY CONSOLE.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; SPIN-SCAN CAMERA; PATTERN RECOGNITION; CLOUD MOTION; SATELLITE PHOTOGRAPHS; DIGITIZING; COMPUTER METHODS; GEOSYNCHRONOUS SATELLITE

JOURNAL TITLE: JOURNAL OF APPLIED METEOROLOGY, VOL. 10, PAGES 105-117.

UNIVERSITY OF DAYTON ACCESS NUMBER: 83

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DATE OF DOCUMENT/TYPE: FEB 71 / JOURNAL ARTICLE

TITLE OF DOCUMENT: MAGNETOPAUSE ELECTRIC FIELD INFERRED FROM ENERGETIC PARTICLE MEASUREMENTS ON ATS-5.

AUTHOR: GIGOTT, F.H.; MOZER, F.S.

SPONSORING AGENCY: SPACE SCIENCE LABORATORY, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA 94721

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: TO PRESENT THE RESULTS OF ENERGETIC PROTON AND ELECTRON MEASUREMENTS MADE ON TWO OCCASIONS AT THE MAGNETOPAUSE ON ATS-5.

ABSTRACT: ENERGETIC (>3) KEV) PROTON AND ELECTRON FLUX MEASUREMENTS WERE MADE AT 6.6 RE ON ATS-5 DURING MAGNETOPAUSE CROSSINGS ON SEPTEMBER 29, 1969, AND MARCH 5, 1970. IN EACH EVENT AN ORDER OF MAGNITUDE DECREASE IN THE ELECTRON FLUX WAS OBSERVED MORE THAN 20° ELECTRON GYROCYCLES BEFORE THE BOUNDARY WAS REACHED. WHILE THE PROTON FLUX REMAINED UNCHANGED UNTIL AFTER THE BOUNDARY CROSSING. TO EXPLAIN THESE DATA, AN OUTWARD-DIRECTED ELECTRIC FIELD IS ASSUMED TO HAVE EXISTED IN A REGION 800 TO 1,000 KM WIDE ON THE EARTHWARD SIDE OF THE MAGNETOPAUSE, CREATING AN E X B DRIFT OPPOSITELY DIRECTED TO AN OFFSET THAN THE ELECTRON DRIFT, THEREBY EXCLUDING ELECTRONS BUT NOT PROTONS FROM THIS REGION. THE REQUIRED ELECTRIC FIELD IS ABOUT 65 MV/METER, PRODUCING A POTENTIAL OF ABOUT 50 KV ACROSS THE BOUNDARY LAYER. THESE DATA ARE CONSISTENT WITH MODELS OF A CLOSED MAGNETOSPHERE, BUT THEY APPLY ONLY DURING PERIODS OF EXTREME MAGNETIC ACTIVITY.

CONCLUSIONS: ENERGETIC PARTICLE MEASUREMENTS MADE IN THE VICINITY OF THE MAGNETOPAUSE DURING THE MAGNETIC STORMS OF SEPTEMBER 29, 1969, AND MARCH 5, 1970, HAVE BEEN INTERPRETED IN TERMS OF AN ELECTRIC FIELD PERPENDICULAR TO AND INSIDE THE MAGNETOPAUSE WITH A STRENGTH OF APPROXIMATELY 65 MV/METER AND A POTENTIAL DROP OF APPROXIMATELY 50 KV. THESE RESULTS PROVIDE EVIDENCE THAT IS CONSISTENT WITH THE EXISTENCE OF A CLOSED MAGNETOSPHERE, AT LEAST DURING RATHER SHORT DISTURBED TIME INTERVALS, AND THAT IS INCONSISTENT WITH OPEN MAGNETOSPHERE MODELS.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-5; ENERGETIC PARTICLES; MAGNETOSPHERE MODELS; MAGNETIC ACTIVITY; MAGNETOPAUSE; ELECTRIC FIELD

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 76, ISSUE 4, PAGES 992-998.

UNIVERSITY OF DAYTON ACCESS NUMBER: 91

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DATE OF DOCUMENT/TYPE: FEB 72 / JOURNAL ARTICLE

TITLE OF DOCUMENT: QUIET DAY MAGNETIC FIELD AT ATS-1

AUTHOR: CUMMINGS, W.D.; COLEMAN, P.J.; SISDOE, G.L.

SPONSORING AGENCY: GRAMBLING COLLEGE, GRAMBLING, LOUISIANA

SATELLITE: ATS-1

EXPERIMENT PERIOD: JAN-JUN 1967

OBJECT OF EXPERIMENT: TO CALCULATE THE EQUATORIAL COMPONENT OF THE INTERACTION FORCE BETWEEN THE SOLAR WIND AND THE EARTH

ABSTRACT: A STUDY OF THE QUIET DAY MAGNETIC FIELD AT ATS-1 FOR THE INTERVAL OF JANUARY THROUGH JUNE 1967 IS PRESENTED. FOR EACH OF 28 QUIET DAYS THE H COMPONENT (PERPENDICULAR TO THE EQUATORIAL PLANE) IS FOURIER-DECOMPOSED TO YIELD APPROXIMATE VALUES FOR THE GRADIENT IN THE FIELD OF THE EXTERNAL CURRENTS EVALUATED AT THE EARTH. THESE GRADIENTS ARE USED TO CALCULATE THE EQUATORIAL COMPONENT OF THE INTERACTION FORCE BETWEEN THE SOLAR WIND AND THE EARTH. THE FORCE WAS DIRECTED AWAY FROM THE SUN-EARTH LINE BY ABOUT 12 DEGREES ON THE AVERAGE, ALTHOUGH THERE WAS CONSIDERABLE VARIATION FROM DAY TO DAY. THIS DEVIATION IS 2 OR 3 TIMES THAT EXPECTED FROM THE ORBITAL MOTION OF THE EARTH IN THE RADIAL SOLAR WIND AND IS CONSISTENT WITH

CONCLUSION: THAT QUIET DAY MAGNETIC FIELD INDICATES A TILT OF THE SYMMETRY AXIS BY AN AMOUNT GREATER THAN CAN BE ACCOUNTED FOR BY THE EFFECT OF THE EARTH'S ORBITAL VELOCITY RELATIVE TO THE SOLAR WIND. PERPENDICULAR TO AND INSIDE THE MAGNETOPAUSE WITH A STRENGTH OF APPROX

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; GEOSYNCHRONOUS SATELLITE; MAGNETIC FIELD; MAGNETOPAUSE; SOLAR WIND

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 76, ISSUE 4, PAGES 926-932.

UNIVERSITY OF DAYTON ACCESS NUMBER: 93

DATE OF DOCUMENT/TITLE: JAN 71 / JOURNAL ARTICLE

TITLE OF DOCUMENT: MAGNETOPAUSE CROSSING OF THE GEOSTATIONARY SATELLITE ATS-5 AT 6.6 RE

AUTHOR: SKILLMAN, T.L.; SUGIURA, M.

SPONSORING AGENCY: LABORATORY OF SPACE PHYSICS, GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS-1; ATS-5 EXPERIMENT PERIOD: SEPT 29-30, 1969

OBJECT OF EXPERIMENT: TO EXPLAIN A MODERATE MAGNETIC STORM OBSERVED AT ATS-5.

ABSTRACT: THIS PAPER DESCRIBES THE MAGNETIC FIELD DATA REPORTED BY ATS-5 ON SEPT. 29-30, 1969. THE AUTHORS GIVE AN EXPLANATION FOR THE OBSERVED PHENOMENA, PRESENTING GRAPHS OF THE MAGNETIC FIELD STRENGTH FOR BOTH ATS-5 AND ATS-1. FROM THE ATS-1 AND ATS-5 OBSERVATIONS AND MAGNETOGRAMS FROM GROUND STATIONS THEY INFERRED THAT A MAGNETOPAUSE CROSSING OF ATS-5 OCCURRED AND WAS CAUSED BY A LOCALIZED RAPID INWARD MOTION OF THE MAGNETOPAUSE AND ITS SUBSEQUENT RECESSION TEMPORARILY PERTURBING AN INDENTATION.

CONCLUSION: THAT THE SUDDEN FIELD DECREASE OBSERVED BY ATS-5 AT ABOUT 1733 ON SEPTEMBER 29, 1969, WAS PRODUCED BY A LOCALIZED NONSTATIONARY INWARD EXPANSION OF THE MAGNETOPAUSE THAT EXPOSED ATS-5 TO THE MAGNETOSPHERIC FIELD FOR ABOUT 1 MIN. THE FIELD CHANGE OBSERVED DURING THIS EVENT IS QUITE SIMILAR TO WHAT WE HAVE CALLED 'HOLES' IN THE MAGNETIC FIELD OBSERVED INSIDE THE MAGNETOSPHERE NEAR ITS BOUNDARY. THE HOLES ARE ASSUMED TO HAVE BEEN PRODUCED BY BLOBS OF A HOT MAGNETOSHEATH PLASMA.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-5; GEOSYNCHRONOUS SATELLITE; MAGNETOPAUSE; MAGNETIC STORM; MAGNETOSPHERE

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 76, ISSUE 1, PAGES 44-51.

UNIVERSITY OF DAYTON ACCESS NUMBER: 86

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DATE OF DOCUMENT/TYPE: JAN 71 / JOURNAL ARTICLE  
 TITLE OF DOCUMENT: STORMTIME DISTURBANCE FIELDS AT ATS-1  
 AUTHOR: COLEMAN, P.J.; CUMMINGS, W.D.  
 SPONSORING AGENCY: DEPT. OF PLANETARY AND SPACE SCIENCE, UNIVERSITY OF CALIFORNIA, LOS ANGELES, CALIFORNIA  
 SATELLITE: ATS-1 EXPERIMENT PERIOD: JAN-JUN 1967  
 OBJECT OF EXPERIMENT: TO ANALYZE MAGNETIC FIELD DATA REPORTED AT ATS-1 DURING THE FIRST 6 MONTHS OF 1967. THE DATA IS COMPARED WITH DATA OBTAINED AT LOW LEVEL OBSERVATORIES.  
 ABSTRACT: THIS REPORT DESCRIBES MAGNETIC FIELD DATA OBTAINED FROM ATS-1 DURING NINE GEOMAGNETIC STORMS. THE RESULTS INDICATE THAT THE SUDDEN COMPRESSION OF THE CAVITY PERSISTS THROUGH THE INITIAL PHASE AND FALL INTO THE MAIN PHASE DECREASE. EXTENSIVE DATA IS PRESENTED.  
 CONCLUSIONS: THE EFFECTS OF SUDDEN-COMMENCEMENT USUALLY INCLUDE AN INCREASE IN THE TAIL CURRENT ALONG WITH THE INCREASE IN THE COMPRESSION OF THE GEOMAGNETIC CAVITY.  
 SUBJECT: METEOROLOGY  
 KEYWORDS: ATS-1; GEOSYNCHRONOUS SATELLITE; MAGNETIC FIELD; MAGNETOPAUSE; MAGNETOSPHERE; MAGNETIC STORM  
 JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 71, ISSUE 1, PAGES 51-62.

UNIVERSITY OF DAYTON ACCESS NUMBER: 85

DATE OF DOCUMENT/TYPE: 31 DEC 76 / TECHNICAL REPORT

TITLE OF DOCUMENT: COMPARISON OF THE PREDICTED AND OBSERVED MAGNETIC FIELD AT ATS-1

AUTHOR: OLSON, W P; CUMMINGS, W D

SPONSORING AGENCY: OLSON: MCDONNELL DOUGLASS ASTRONAUTICS CO., W. HUNTINGTON BEACH, CALIFORNIA; CUMMINGS: GRAMBLING COLL  
EGE, GRAMBLING, LA.

SATELLITE: ATS-1

EXPERIMENT PERIOD: JAN 67 - JUN 67

OBJECT OF EXPERIMENT: TO USE THE GEOSYNCHRONOUS SATELLITE ATS-1 TO TEST THE ACCURACY THE MAGNETIC FIELD PREDICTED BY  
VARIOUS MODELS OF THE MAGNETOSPHERIC CURRENT SYSTEMS FOR THE EARTH.

ABSTRACT: THE PRINCIPAL FEATURES OF THE QUIET-DAY MAGNETIC FIELD VARIATIONS AT THE POSITION OF THE GEOSY  
NCHRONOUS SATELLITE ATS-1 ARE COMPARED WITH THE FIELDS PREDICTED BY SEVERAL MAGNETOSPHERIC MODELS.  
TO PROPERLY PREDICT THE ATS-1 FIELD, THE MAGNETOPAUSE MODEL MUST INCLUDE 'TILT' EFFECTS (CAUSED BY  
THE CHANGING ORIENTATION OF THE EARTH'S DIPOLE AXIS WITH RESPECT TO THE SOLAR WIND DIRECTION), AND  
THE MODEL OF THE TAIL FIELD MUST ALLOW THE NEUTRAL SHEET CURRENTS TO RETURN ON THE MAGNETOPAUSE. O.  
LSON'S MODELS OF THE MAGNETOPAUSE AND TAIL FIELDS, WHICH INCORPORATE THESE FEATURES, ARE USED TO PRE  
DICT THE DAILY AND SEASONAL FIELD VARIATIONS AT OTHER GEOSYNCHRONOUS LONGITUDES. THE FIELDS PREDICT  
ED BY THESE MODELS ACCOUNT FOR MOST OF THE OBSERVED ATS-1 VARIATIONS.

CONCLUSION: IT IS CONCLUDED THAT THE MAGNETIC FIELDS PREDICTED BY OLSON'S MODELS OF THE MAGNETOPAUSE (WHICH  
INCLUDES DEPENDENCE ON SOLAR WIND DIPOLE AXIS ANGLE) AND NEUTRAL SHEET (WITH RETURN CURRENTS ON THE  
E MAGNETOPAUSE) CURRENT SYSTEM PLUS THE EARTH'S MAIN FIELD (CONSTANT CONTRIBUTION) ACCOUNT FOR MOST  
OF THE VARIATIONS IN THE MAGNETIC FIELD OBSERVED AT THE POSITION OF ATS-1. THE FIELD FROM A DISTR  
IBUTED (RING) CURRENT AND THE EFFECTS OF CHANGING SOLAR WIND PARAMETERS MAY EXPLAIN MOST OF THE RE  
MAINING DIFFERENCES BETWEEN THE DATA AND MODEL PREDICTIONS.

SUBJECT: METEOROLOGY

KEYWORDS: MAGNETISM; ATS-1; GEOSYNCHRONOUS SATELLITE; MAGNETIC FIELD

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, SPACE PHYSICS, VOL. 75, ISSUE 34, PAGES 7117 - 7121

UNIVERSITY OF DAYTON ACCESS NUMBER: 46

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DATE OF DOCUMENT/TYPE: 31 NOV 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: COORDINATED AURAL-ELECTRON OBSERVATIONS FROM A SYNCHRONOUS AND A POLAR SATELLITE

AUTHOR: SHERP, P D; CARR, D L; JOHNSON, R G; SHELLEY, E G

SPONSORING AGENCY: LOCKHEED PALO ALTO RESEARCH LABORATORY/PALO ALTO, CALIFORNIA

SATELLITE: ATS-5 AND OVI-19, 11 EXPERIMENT PERIOD: 1969 - 1970

OBJECT OF EXPERIMENT: TO PROBE THE MAGNETOSPHERE BY MEANS OF MULTIPLE SATELLITE FOR THE PURPOSE OF MEASURING LOW ENERGY PARTICLE FLUXES

ABSTRACT: THE ATS-5 SATELLITE IN SYNCHRONOUS ORBIT AND THE OVI-19 SATELLITE IN A LOW-ALTITUDE POLAR ORBIT CARRIED SIMILAR EXPERIMENTS TO MEASURE AURAL-PARTICLE FLUXES IN THE ENERGY RANGE FROM ONE HALF TO 50 KEV. SIMULTANEOUS ELECTRON FLUX OBSERVATIONS ARE PRESENTED FROM FIVE INSTANCES WHEN THE OVI-19 PASSED WITHIN A FEW HUNDRED KILOMETERS OF THE COMPUTED CONJUGATE POINT TO ATS-5. THE INTEGRAL FLUX LEVELS WERE FOUND TO BE GENERALLY COMPARABLE AT THE TWO LOCATIONS WITH NO EVIDENCE FOR ANGULAR DISTRIBUTIONS HIGHLY PEAKED ALONG THE FIELD LINE. THE SPECTRUMS WERE SIGNIFICANTLY HARDER AT ATS-5 WITH AVERAGE ENERGIES APPROXIMATELY A FACTOR OF TWO HIGHER THAN AT OVI-19. EVIDENCE IS PRESENTED FOR A DRAMATIC DIFFERENCE IN THE SHAPES OF THE SPECTRUMS AT THE TWO LOCATIONS WITH SMOOTHLY FALLING RELATIVELY FEATURELESS SPECTRUMS OBSERVED AT ATS-5 AND SPECTRUMS WITH A PEAK IN THE FEW KEV RANGE OBSERVED AT OVI-19. BASED ON THE FIVE PASSES DESCRIBED HERE, THERE IS EVIDENCE THAT THE TRAPPED COMPONENT OF THE FLUX INCREASES MORE RAPIDLY THAN THE PRECIPITATING COMPONENT DURING MORE ACTIVE TIMES.

CONCLUSIONS: (1) THE INTEGRAL FLUX LEVELS AT ATS-5 AND OVI-19 ARE GENERALLY WITHIN A FACTOR OF TWO OF EACH OTHER; THERE IS NO EVIDENCE FOR HIGHLY ANISOTROPIC EQUATORIAL ANGULAR DISTRIBUTIONS PEAKING ALONG THE FIELD LINE. (2) THE AVERAGE ELECTRON ENERGY IS GENERALLY SIGNIFICANTLY HIGHER AT ATS-5. (BUT THE ABOVE CONCLUSIONS ARE INFLUENCED BY SOME REASONABLE UNCERTAINTY IN THE LOCATION OF THE CONJUGATE POINT.) (3) ON A PROBABILITY BASIS, THERE IS EVIDENCE FOR A DRAMATIC DIFFERENCE IN THE SHAPE OF THE SPECTRUMS, WITH A PEAK IN THE FEW KEV RANGE GENERALLY FOUND AT OVI-19, WHICH IS NOT PRESENT AT ATS-5. (4) THERE IS TENTATIVE EVIDENCE FOR A MORE RAPID INCREASE IN THE TRAPPED PARTICLE FLUXES THAN IN THE PRECIPITATING COMPONENT DURING MORE ACTIVE TIMES.

SUBJECT: METEOROLOGY

KEYWORDS: AURAL-ELECTRON CONTENT: ATS-5

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 76, ISSUE 31, PAGES 7569-7582

UNIVERSITY OF DAYTON ACCESS NUMBER: 97

DATE OF DOCUMENT/TYPE: 01 JUN 71 / TECHNICAL REPORT  
TITLE OF DOCUMENT: PLASMA CLOUDS IN THE MAGNETOSPHERE  
AUTHOR: DEFOREST, S E; MCILWAIN, C E  
SPONSORING AGENCY: UNIVERSITY OF CALIFORNIA/LA JOLLA, CALIFORNIA

SATELLITE: ATS-5; R = 6.6 RE/12

EXPERIMENT PERIOD: JAN 70

OBJECT OF EXPERIMENT: TO USE ATS-5 TO SHOW WHETHER OR NOT A TIME DEPENDENCE AND/OR STRUCTURE EXISTS IN THE ENERGY SPECTRA OF CHARGED PARTICLES ON AURORAL LINES OF FORCE

ABSTRACT: EQUATORIAL OBSERVATIONS BY THE GEOSTATIONARY SATELLITE ATS-5 OF THE CHARGED PARTICLES ON AURORAL LINES OF FORCE REVEAL THE FREQUENCY INJECTION OF PLASMA INTO THIS REGION OF THE MAGNETOSPHERE. THESE INTRUSIONS OF HOT PLASMA ARE FOUND TO HAVE A ONE-TO-ONE CORRESPONDENCE WITH MAGNETOSPHERIC SUBSTORMS. AN INJECTION IS ASSUMED TO CORRESPOND TO AN INWARD FLOW FROM THE PLASMA SHEET IN THE MAGNETOTAIL. THIS FLOW SEEMS TO SUBSIDE GRADUALLY SO THAT INJECTION EVENTUALLY CEASES. THE NET RESULTS IS THE INSERTION OF A RELATIVELY DISCRETE SET OF PARTICLES, I.E., A 'PLASMA CLOUD', ON LINES OF FORCE THAT ARE NOT NORMALLY INVOLVED IN THE FLOW OF THE PLASMA SHEET PARTICLES. THE CLOUDS OF FRESHLY INJECTED PLASMA ARE DISPERSED BY THE EARTH'S MAGNETIC AND ELECTRIC FIELDS SUCH THAT COMPLICATED ENERGY STRUCTURES IS GENERATED.

CONCLUSIONS: ANALYSIS OF THE DATA OBTAINED BY THE UCSD EXPERIMENT ON THE ATS-5 SATELLITE HAS YIELDED THE FOLLOWING CONCLUSIONS:

A HOT CLOUD OF PLASMA IS INJECTED INTO THE MIDNIGHT SECTOR OF THE MAGNETOSPHERE DURING EACH SUBSTORM.

ENERGY AND PITCH ANGLE DEPENDENT DISPERSION PRODUCES (1) SHARP AND LONG-LIVED ENERGY STRUCTURE, AND (2) LARGE ENERGY DEPENDENT PITCH ANGLE ANISOTROPIES.

THE MAIN BODY OF PLASMA MAY NOT DIRECTLY REFLECT THE STRONG SPACE AND TIME VARIATIONS USUALLY EXHIBITED BY AURORAL PRECIPITATION PATTERNS.

INCREASES IN THE ELECTRIC FIELD ASSOCIATED WITH A SUBSTORM CAN FURTHER ACCELERATE PARTS OF THE PLASMA PREVIOUSLY INJECTED. IT THEREFORE SEEMS PROBABLE THAT THESE INCREASES NOT ONLY PROVIDE AN INPUT, BUT ALSO CAUSE AT LEAST THE INITIAL STEPS IN THE 'RADIAL DIFFUSION' RESPONSIBLE FOR THE RADIATION BELTS.

SUBJECT: METEOROLOGY

KEYWORDS: PLASMA CLOUDS; CLOUDS; MAGNETOSPHERE; ATS-5; CHARGE PARTICLES; AURORAL

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 76, ISSUE 16, PAGES 3587-3611

UNIVERSITY OF DAYTON ACCESS NUMBER: 88

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DATE OF DOCUMENT/TITLE: OCT. 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: EQUATORIAL PROTON AND ELECTRON ANGULAR DISTRIBUTIONS IN THE LOSS CONE AND AT LARGE ANGLES

AUTHOR: BOGOT, F.M.; MOZER, F.S.

SPONSORING AGENCY: UNIVERSITY OF CALIFORNIA

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: TO MAKE COORDINATED MEASUREMENTS ON BOTH PROTON AND ELECTRON DISTRIBUTIONS THAN PREVIOUSLY POSSIBLE

ABSTRACT: THIS PAPER DESCRIBES IN DETAIL THE PURPOSE, TECHNIQUE, AND RESULTS OF AN EFFORT BY UNIVERSITY OF CALIFORNIA AT BERKELEY TO MEASURE ELECTRON AND PROTON PITCH-ANGLE DISTRIBUTIONS IN THE UPPER ATMOSPHERE VIA THE ATS-5 SATELLITE.

SUBJECT: DATA TRANSMISSION METEOROLOGY

KEYWORDS: ATS-5; PROTON DISTRIBUTION; ELECTRON CONTENT

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 76, ISSUE 28, PAGES 6700-6805

UNIVERSITY OF DAYTON ACCESS NUMBER: 89

DATE OF DOCUMENT/TYPE: DEC 70 / TECHNICAL REPORT  
TITLE OF DOCUMENT: SUDDEN IMPULSES IN THE MAGNETOSPHERE OBSERVED AT SYNCHRONOUS ORBIT  
AUTHOR: PATEL, V.L. & COLEMAN, P.J.  
SPONSORING AGENCY: UNIVERSITY OF CALIFORNIA, LOS ANGELES  
SATELLITE: ATS COMMUNICATIONS: VHF EXPERIMENT PERIOD: JAN 67-DEC 67  
OBJECT OF EXPERIMENT: TO RECORD SUDDEN IMPULSES IN THE MAGNETOSPHERE VIA A MAGNETOMETER ABOARD ATS-1  
ABSTRACT: ATS 1 DATA ON THE MAGNETIC FIELD IN THE EQUATORIAL PLANE AT A GEOCENTRIC DISTANCE OF 6.6 EARTH RADII HAVE BEEN USED TO STUDY IMPULSES (SI). FIFTEEN SI EVENTS THAT PRODUCED EFFECTS AT ATS 1 WERE EXAMINED. RECORDS ON THE SURFACE FIELD AT HIGH AND LOW LATITUDES WERE COMPARED WITH THE ATS 1 RECORDS FOR EACH EVENT.  
SUBJECT: DATA TRANSMISSION METEOROLOGY  
KEYWORDS: ATS-1; MAGNETOSPHERE  
JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, SPACE PHYSICS  
VOL. 75, ISSUE 34

UNIVERSITY OF DAYTON ACCESS NUMBER: 98

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DATE OF DOCUMENT/TYPE: MAR 73

/ TECHNICAL REPORT  
PROGRESS REPORT

TITLE OF DOCUMENT: REPORT ON PANPACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE PROJECT (PEACESAT) OF THE  
UNIVERSITY OF HAWAII FOR APRIL 1971-DECEMBER 1972.

AUTHOR: BYSTROM, J.W.

SPONSORING AGENCY: UNIVERSITY OF HAWAII

SATELLITE: ATS COMMUNICATIONS: VHF

EXPERIMENT PERIOD: MAY 72-DEC 72

SUBJECT OF EXPERIMENT: TO PLAN, DEMONSTRATE, AND EVALUATE PROJECTS TO IMPROVE COMMUNICATIONS AND INCREASE THE EFFICIENCY AND  
EFFECTIVENESS OF TELECOMMUNICATIONS FOR EDUCATION, HEALTH, AGRICULTURAL, AND NONPROFIT COMMUNITY  
DEVELOPMENT PURPOSES THROUGH APPLICATION OF THE PAN PACIFIC EDUCATION AND COMMUNICATION EXPERIMENT  
S SATELLITE AND OTHER COMMUNICATIONS TECHNOLOGY IN HAWAII AND THE PACIFIC BASIN.

ABSTRACT: THIS REPORT CONTAINS A WEALTH OF INFORMATION ON THE PEACESAT PROJECT. INCLUDED IS (1) A REPORT OF  
PROGRESS COVERING THE TIME FROM INITIATION IN FEB 71 THROUGH MAR 73 AND ALSO (2) A REQUEST FOR CON-  
INUING USE OF THE ATS-1 FOR A PERIOD ENDING IN DEC. 74.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS

KEYWORD: PEACESAT: ATS-1: EDUCATION: COMMUNICATIONS: UNIVERSITY OF HAWAII

UNIVERSITY OF DAYTON ACCESS NUMBER: 91

DATE OF DOCUMENT/TYPER: APR 73

/ PROPOSAL

TITLE OF DOCUMENT:

REPORT ON PANPACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE PROJECT (PEACESAT) OF THE UNIVERSITY OF HAWAII FOR APRIL 1971-DECEMBER 1972: PART III--A REQUEST FOR CONTINUING USE OF ATS-1 SATELLITE FOR A PERIOD ENDING DECEMBER 1974.

AUTHOR:

BYSTROM, J W

SPONSORING AGENCY:

UNIVERSITY OF HAWAII

SATELLITE: ATS-1

COMMUNICATIONS: VHF

EXPERIMENT PERIOD: APR 73 - DEC 74

OBJECT OF EXPERIMENT:

TO IMPROVE THE SOCIAL SERVICES IN AREAS WHICH LACK ADEQUATE COMMUNICATIONS BECAUSE OF SPARSE POPULATION, REMOTENESS, AND LOW INCOME

ABSTRACT:

THIS PAPER REQUESTS PERMISSION FOR A TWO-YEAR EXTENSION OF ATS-1 BY THE PEACESAT PROJECT AT UNIVERSITY OF HAWAII. THE PAPER CALLS ATTENTION TO BASIC DEMONSTRATIONS COMPLETED THUS FAR SHOWING FEASIBILITY OF THE ATS-1. EXPERIENCE TO DATE INDICATES THAT A SMALL EXPANSION IN THE SYSTEM WOULD IMPROVE DEMONSTRATION STUDY OUTCOMES. A REVISED SET OF OBJECTIVES IS STATED PART OF WHICH IS AS FOLLOWS:

I. TO DEVELOP WITH VARIOUS AGENCIES IN THE PACIFIC JOINT PLANNING AND A COOPERATIVE APPROACH TO DEVELOPMENT OF COMMUNICATION SYSTEMS NECESSARY TO HEALTH CARE, EDUCATIONAL, AND COMMUNITY SERVICES.

II. TO INSTITUTE A CENTER OF COMPREHENSIVE COMMUNICATION PLANNING CONCERNED WITH THE PACIFIC AREA, TELECOMMUNICATION ENGINEERS, SYSTEM PLANNERS, AND SOCIAL SCIENTISTS.

III. TO DETERMINE WHAT COMMUNICATIONS CAN BE DEVELOPED TO IMPROVE HEALTH, EDUCATION, AND COMMUNITY SERVICES IN THE PACIFIC WITH THE AVAILABILITY OF LOW-COST SATELLITE AND OTHER COMMUNICATION LINKS.

IV. TO CONSTRUCT AND MAINTAIN A DEMONSTRATION SATELLITE GROUND TERMINAL SYSTEM IN THE PACIFIC BASIN.

V. TO CONDUCT A SERIES OF PILOT COMMUNICATION ACTIVITIES, IN WHICH SATELLITE COMMUNICATION IS APPLIED TO HEALTH CARE, EDUCATION, AND COMMUNITY PROGRAMS.

VI. TO CONDUCT A COMMUNICATION EQUIPMENT'S STUDY.

VII. TO DEVELOP AND TEST ALTERNATIVE TELECOMMUNICATION SYSTEM MODELS.

SUBJECT:

BROADCASTING

DATA TRANSMISSION

EDUCATIONAL APPLICATIONS

MEDICAL/HEALTH APPLICATIONS

KEYWORDS:

ATS-1; VHF; HAWAII; PEACESAT

UNIVERSITY OF DAYTON ACCESS NUMBER:

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DATE OF DOCUMENT/TITLE: APR 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: REPORT ON PANPACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY THE SATELLITE PROJECT (PEACESAT) OF THE UNIVERSITY OF HAWAII FOR APRIL 1971-DECEMBER 1972. ATTACHMENT A--THE PEACESAT SYSTEM EQUIPMENT

AUTHOR: BYSTROM, J M; NOSE, KI YUEN, P C

SPONSORING AGENCY: UNIVERSITY OF HAWAII

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: APR 73 - DEC 74

OBJECT OF EXPERIMENT: TO IMPROVE THE SOCIAL SERVICES IN AREAS WHICH LACK ADEQUATE COMMUNICATIONS BECAUSE OF SPARSE POPULATION, REMOTENESS, AND LOW INCOME

ABSTRACT: THIS PAPER PROVIDES A TECHNICAL DESCRIPTION OF ATS-1 LOCATION AND COMMUNICATION CAPABILITY AS WELL AS TECHNICAL INFORMATION ON THE GROUND EQUIPMENT SUCH AS ANTENNAS AND ELECTRONIC EQUIPMENT

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; VHF; HAWAII; PEACESAT; ANTENNA; VOICE COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 93

DATE OF DOCUMENT/TYPE: APR 73 / PROPOSAL

TITLE OF DOCUMENT: REPORT ON PANPACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE PROJECT (PEACESAT) OF THE UNIVERSITY OF HAWAII APRIL 1971-DECEMBER 1972: ATTACHMENTS D, E, AND F (PROPOSALS)

AUTHOR: BYSTROM J W

SPONSORING AGENCY: UNIVERSITY OF HAWAII

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: APR 71 - DEC 72

OBJECT OF EXPERIMENT: TO IMPROVE THE SOCIAL SERVICES IN AREAS WHICH LACK ADEQUATE COMMUNICATIONS BECAUSE OF SPARSE POPULATION, REMOTENESS, AND LOW INCOME

ABSTRACT: THIS IS A SET OF THREE PROPOSALS SUBMITTED BY THE UNIVERSITY OF HAWAII, PEACESAT PROJECT, WITH TITLES AS FOLLOWS: (1) PROPOSAL TO NASL, (2) PROPOSAL TO NATIONAL LIBRARY OF MEDICINE, AND (3) PROPOSAL TO HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; HAWAII; PEACESAT

UNIVERSITY OF DAYTON ACCESS NUMBER: 95

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DATE OF DOCUMENT/TYPER: JAN 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: FUJIPP UNITED STATES EDUCATIONAL BROADCAST SATELLITE EXPERIMENTS: THE STATE OF ALASKA EXPERIMENT

AUTHOR: POLSON, K.A.

SATELLITE: ATS-1 COMMUNICATIONS: WHF EXPERIMENT PERIOD: FEB 74-DEC 74

SUBJECT OF EXPERIMENT: TO DETERMINE THOSE COMMUNICATION SERVICES WHICH ARE DESIRABLE AND WILL MEET THE EDUCATIONAL NEEDS OF THE POPULACE OF ALASKA

ABSTRACT: THIS PAPER DOCUMENTS EFFORTS ON THE PART OF THE STATE OF ALASKA TO CONTINUE USE OF ATS EDUCATIONAL PROGRAMS - NOTABLY WITH THE ATS-F. THE EDUCATIONAL PORTION OF THE ALASKA EXPERIMENT IS TO CONCENTRATE ON THE EXPLOitation OF THE VARIOUS TYPES OF SERVICES THAT CAN BE PROVIDED WITH THE ATS-F RATHER THAN ATTEMPTING TO ACHIEVE SPECIFIC LEARNING OUTCOMES. THIS IS A REALISTIC APPROACH, SINCE A SATELLITE IS NOT NEEDED TO DETERMINE THE EFFICACY OF LEARNING MATERIALS; INSTEAD, WHAT NEEDS TO BE KNOWN ABOUT A BROADCAST SATELLITE SYSTEM IS THE TYPES AND KINDS OF SERVICES THAT CAN BE PROVIDED, AND THOSE THAT ARE DESIRED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: ALASKA; ATS-1; EDUCATION; ATS-F

JOURNAL TITLE: EDUCATIONAL TECHNOLOGY, VOL. 14, ISSUE 1, PAGES 27-31

UNIVERSITY OF DAYTON ACCESS NUMBER: 98

DATE OF DOCUMENT/TYPE: JAN 1968 / TECHNICAL REPORT

TITLE OF DOCUMENT: A CATALOGUE OF METEOROLOGICAL DATA OBTAINED DURING THE LINE ISLANDS EXPERIMENT FEBRUARY - APRIL 1967

AUTHOR: ZIPSER, E J; TAYLOR, R C

SPONSORING AGENCY: HAWAII INSTITUTE OF GEOPHYSICS/UNIVERSITY OF HAWAII

SATELLITE: ATS-1 COMMUNICATIONS: 16 DEC 1966 EXPERIMENT PERIOD: FEB - APR 1967

OBJECT OF EXPERIMENT: TO PROVIDE COMPREHENSIVE METEOROLOGICAL DATA IN THE OCEANIC PART OF THE EQUATORIAL TROUGH ZONE FOR A VARIETY OF BASIC STUDIES, AND TO PROVIDE DATA WITH WHICH TO EVALUATE CLOUD PHOTOGRAPHY PERFORMED BY THE ATS-1 SATELLITE

ABSTRACT: TO PROVIDE A DATA SAMPLE FOR BASIC OBSERVATIONAL STUDIES OF METEOROLOGICAL PHENOMENA IN THE OCEANIC PORTION OF THE EQUATORIAL TROUGH ZONE. TO BE SURE, THE TROUGH ZONE HAS NOT GONE UNOBSERVED IN THE PAST; SOME OCEANOGRAPHIC DATA EXIST, SOME SURFACE AND UPPER-AIR DATA EXIST, AND SOME SATELLITE OBSERVATIONS EXIST. HOWEVER, ALL THESE DATA HAVE THE CRUCIAL DEFICIENCY THAT THEY ARE UNCORRELATED, AND/OR THAT MUCH OF THE ATMOSPHERIC DATA COMES FROM THE VICINITY OF LARGE ISLANDS OF CONTINENTS--INTRODUCING COMPLICATING EFFECTS THAT, IN THE PRIMITIVE STATE OF OUR KNOWLEDGE, ARE DIFFICULT TO ACCOUNT FOR. THE LINE ISLANDS PROGRAM HAS PROVIDED THE FIRST COMPREHENSIVE DATA SAMPLE IN THE OCEANIC EQUATORIAL TROUGH ZONE--FAR FROM CONTINENTS OF SIGNIFICANTLY LARGE ISLANDS--THAT COMBINES ADEQUATE SATELLITE AND METEOROLOGICAL DATA FOR A VARIETY OF BASIC STUDIES.

TO SERVE AS A PILOT FOR MORE EXTENSIVE TROPICAL METEOROLOGICAL EXPERIMENTS (I.E., TRUDEX) IN THE FUTURE.

THE METEOROLOGICAL PROGRAM WAS BASED ON PALMYRA, FANNING, AND CHRISTMAS ISLANDS, AND MOST OF THE SHIP- AND AIRCRAFT-BASED OBSERVATIONS WERE CARRIED OUT WITHIN A 100-N-MILE RADIUS OF THESE ISLANDS. THEREFORE, THE DATA OBTAINED DURING THE LINE ISLANDS EXPERIMENT CAN BE EXPLOITED TO ITS GREATEST POTENTIAL IN THE STUDY OF METEOROLOGICAL PROCESSES ON SCALES UP TO AND INCLUDING THE SMALL SYNOPTIC SCALE.

SUBJECT: METEOROLOGY

KEYWORDS: METEOROLOGY; LINE ISLAND EXPERIMENT; ATS-1; CLOUDS; PHOTOGRAPHY

TECHNICAL REPORT NUMBER: HS-67-13 UNIVERSITY OF DAYTON ACCESS NUMBER: 103

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DATE OF DOCUMENT/TITLE: 23 MAY 69 / TECHNICAL REPORT  
TITLE OF DOCUMENT: SECOND QUARTERLY REPORT FOR ATS RANGING EXPERIMENT

AUTHOR: ANDERSON, R E  
SPONSORING AGENCY: GENERAL ELECTRIC COMPANY

SATELLITE: ATS-3

EXPERIMENT PERIOD: 25 FEB - 25 MAY 1969

SUBJECT OF EXPERIMENT:

DEMONSTRATE THE FEASIBILITY OF RANGING AND POSITION FIXING FROM SYNCHRONOUS SATELLITES TO SMALL MOBILE TERMINALS AT VHF RADIO FREQUENCIES  
DEMONSTRATE THE ADVANTAGES OF A TONE-CODE (PULSE TRAIN) RANGING TECHNIQUE THAT OFFERS PROMISE OF THE HIGHLY EFFICIENT USE OF SATELLITE ENERGY IN SIMPLE IMPLEMENTATION THAT IS COMPATIBLE WITH ESSENTIALLY USED COMMUNICATION EQUIPMENT  
OBTAIN DATA OVER A LARGE GEOGRAPHICAL REGION AT VARIOUS TIMES OF THE DAY TO INDICATE THE VARIATIONS IN RANGING AND POSITION FIXING ACCURACIES CAUSED BY LOCATION AND TIME OF DAY  
DEMONSTRATE THE GENERAL ELECTRIC COMPANY'S LOW ENERGY SPEECH TRANSMISSION (L.E.S.T.) TECHNIQUE

ABSTRACT:

DURING THE SECOND QUARTER OF WORK IN CONTRACT NASC-11634, TONE-CODE RANGING MEASUREMENTS WERE SUCCESSFULLY MADE TO A FORD ECONOLINE VAN EQUIPPED WITH A GENERAL ELECTRIC MOBILE RADIO SUCH AS IS USED IN TAXI CABS AND POLICE CARS. A TONE-CODE RESPONDER UNIT WAS CONNECTED BETWEEN THE RADIO'S TRANSMITTER AND RECEIVER. RANGE MEASUREMENTS WERE MADE FROM ATS-3 TO THE VAN AS IT PROCEEDED NORTHWARD ALONG A COUNTRY ROAD. THE RANGE MEASUREMENTS WERE USED TO DETERMINE LINES OF POSITION. THE INTERSECTION OF THE LINES OF POSITION WITH THE LONGITUDE OF THE ROAD RESULTED IN A NUMBER OF POSITION FIXES ACCURATE TO APPROXIMATELY ONE-HALF MILE.

FLIGHT TESTS WERE STARTED USING A DC-6 AIRCRAFT OF THE FEDERAL AVIATION ADMINISTRATION. THE AIRCRAFT WAS EQUIPPED WITH A RECEIVER AND TRANSMITTER PREVIOUSLY USED IN VOICE COMMUNICATION TESTS TO SATELLITES. WITH A TONE-CODE RESPONDER CONNECTED BETWEEN THE TRANSMITTER AND RECEIVER, SEVERAL ANTENNAS USED IN THE TEST WERE A DORNE AND HARGOLIN SATCOM ANTENNA AND A BLADE ANTENNA.

UNDER A PROGRAM SUPPORTED BY THE OFFICE OF NAVAL RESEARCH AND THE GENERAL ELECTRIC COMPANY, AN OCEANOGRAPHIC BUOY (SEA BOPIN) WAS EQUIPPED WITH A TONE-CODE RANGING TRANSMITTER. THE BUOY WAS MOORED NEAR BERMUDA WHERE THE OCEAN DEPTH WAS 500 FEET. RANGE MEASUREMENTS FROM ATS-3 WERE MADE TO THE BUOY OVER A TWO-WEEK PERIOD WHILE THE BUOY WAS AT ITS DEEP SEA MOORING. MANY HUNDREDS OF RANGE MEASUREMENTS WERE MADE TO THE BUOY.

CONCLUSIONS:

DATA COLLECTED DURING THE SECOND QUARTER CONTINUES TO SHOW RANGING PRECISION AS REPORTED IN THE FIRST QUARTERLY REPORT. NO SIGNIFICANT LONG-TERM DRIFTS IN EQUIPMENT TIME DELAY WERE OBSERVED DURING THE TWO-WEEK PERIOD OF RANGING INTERROGATIONS TO THE SEA BOPIN BUOY. EQUIPMENT TIME DELAY CHANGES AS A FUNCTION OF AMPLITUDE CAN BE KEPT WITHIN LIMITS CONSISTENT WITH THE CAPABILITIES OF THE EXPERIMENT. THE TIME DELAY THROUGH THE AIRCRAFT RECEIVER FURNISHED BY THE FEDERAL AVIATION ADMINISTRATION WAS MEASURED TO BE APPROXIMATELY 1.5 MICROSECONDS OVER THE OPERATING RANGE OF THE RECEIVER. IN AN EXPERIMENTAL EFFORT, SEPARATE FROM THE CONTRACT EFFORT, IT WAS DETERMINED THAT THE 5-7 MICROSECOND TIME DELAY VARIATION WITH SIGNAL AMPLITUDE IN THE GENERAL ELECTRIC MOBILE RECEIVER COULD BE REDUCED TO LESS THAN 1 MICROSECOND BY A CHANGE IN LIMITED DESIGN.

IN THE ABSENCE OF LIMITED DATA OBTAINED DURING THE FIRST FLIGHT TESTS, STA 2-REFLECTION MULTIPATH INTRODUCED RANGING ERRORS BETWEEN 3 AND 6 MICROSECONDS STANDARD DEVIATION. FOR AN AIRCRAFT FLYING AT 10,000 FEET WITH SATELLITE ELEVATION ANGLES OF APPROXIMATELY 3 DEGREES AND USING A BLADE ANTENNA AND THE HORIZON DIRECTION MODE OF THE DORNE AND HARGOLIN SATCOM ANTENNA. THIS IS A TENTATIVE CONCLUSION THAT WILL RECEIVE RE-EVALUATION DURING THE NEXT REPORTING PERIOD.

SUBJECT: AIR TRAFFIC CONTROL      MARITIME TRAFFIC CONTROL      NAVIGATION

KEYWORDS: TONE-CODES; ATS-3; RANGING; POSITION FIXING

TECHNICAL REPORT NUMBER: NASA-CR-133667

UNIVERSITY OF DAYTON ACCESS NUMBER: 1.1

DATE OF DOCUMENT/TYPE: FEB 69 / TECHNICAL REPORT

TITLE OF DOCUMENT: NASA METEOROLOGICAL AND COMMUNICATIONS SATELLITE PROGRAMS

AUTHOR: BJTEF, H.I

SPONSORING AGENCY: NASA

SATELLITES: ATS-1, ATS-3

EXPERIMENT PERIOD: 1965-1968

OBJECT OF EXPERIMENT: TO UTILIZE THE DEVELOPMENTS AND KNOWLEDGE OF NASA'S EFFORTS IN SPACE RESEARCH FOR PEACEFUL AND BENEFICIAL USES OF OUTER SPACE SUCH AS WEATHER-SATELLITE AND COMMUNICATION-SATELLITE PROGRAMS

ABSTRACT: THIS PAPER ATTEMPTS TO SURVEY THE FIRST TEN YEARS OF NASA'S INVOLVEMENT WITH WEATHER AND COMMUNICATIONS SATELLITE PROGRAMS AS WELL AS TO CITE THE GOALS, ACCOMPLISHMENTS, AND FUTURE PLANS.

SUBJECT: BROADCASTING DATA TRANSMISSION METEOROLOGY

KEYWORDS: ATS-1; ATS-3; METEOROLOGY; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 12

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DATE OF DOCUMENT/TYPE: DEC 1958

/ TECHNICAL REPORT

TITLE OF DOCUMENT: DETERMINE OF THE SEA SURFACE SLOPES DISTRIBUTION AND WIND VELOCITY USING SUN GLITTER VIEWED FROM A SYNCHRONOUS SATELLITE

AUTHOR: SUDHI, V E; PARENT, R J

SPONSORING AGENCY: UNIVERSITY OF WISCONSIN

SATELLITE: ATS-3

EXPERIMENT PERIOD: APRIL 1967

OBJECT OF EXPERIMENT: TO SHOW THE FEASIBILITY OF SPECTROSCOPIC STUDIES OF THE EARTH'S ATMOSPHERE USING THE SUN AS A RADIATION SOURCE AND AN ATS-3 TO DETECT THE SOLAR RADIATION REFLECTED FROM THE OCEAN SURFACE

ABSTRACT: OUR WORK SHOWS THE FEASIBILITY OF STUDYING THE EAST-WEST COMPONENT OF THE WAVES' SLOPE DISTRIBUTION FROM A SYNCHRONOUS SATELLITE BY USING THE SUN AS THE RADIATION SOURCE WITH ITS MOVEMENT, RELATIVE TO THE EARTH, AS A SCANNING MECHANISM.

USING COX AND MUNK'S (1,2) LINEAR RELATION BETWEEN THE VARIANCE OF THE WAVES' SLOPE AND THE WIND VELOCITY, IT WAS POSSIBLE TO CALCULATE SCALAR WIND VELOCITIES IN THE AREA OF SUN GLITTER AND TO COMPARE THEM TO ACTUAL WIND MEASUREMENT TAKEN ON THE OCEAN. THESE COMPARISONS REVEALED THAT THE END RADIUS HEIGHT OF THE OBSERVER DID NOT DEGRADE THE ACCURACY OF THE OBSERVATION. WHEN THE WIND DIRECTION IS GIVEN, THE ACCURACY OF THE CALCULATED WIND VELOCITY IS AS GOOD AS IF THE SUN GLITTER IS STUDIED FROM AIRCRAFT ALTITUDE, I.E.,  $\pm 0.5 - 1$  M/SEC.

IN THE COURSE OF THIS WORK, IT BECAME MORE AND MORE EVIDENT THAT THE SUN GLITTER IS A STRONG AND RELIABLE SOURCE OF RADIATION THAT SHOULD BE STUDIED INSTEAD OF BEING AVOIDED. IN ADDITION TO THE GEOMETRY OF THE SEA AND SURFACE WIND VELOCITY, MUCH CAN BE LEARNED ABOUT THE ATMOSPHERE ABOVE THE SEA, SINCE THIS RADIATION HAS CROSSED THE WHOLE ATMOSPHERE TWICE, AND THE TRIP IS RECORDED IN ITS SPECTRUM.

SUBJECT: METEOROLOGY

KEYWORDS: WAVES; SUN; RADIATION; ATS-3; SEA SURFACE SLOPE; OCEANOGRAPHY

TECHNICAL REPORT NUMBER: CONTRACT NUMBER NASH-65 1958-1965

UNIVERSITY OF DAYTON ACCESS NUMBER: 1.3

DATE OF DOCUMENT/TYPE: NOV 1968 / TECHNICAL REPORT

TITLE OF DOCUMENT: DEVELOPMENT OF A DRY LINE AS SHOWN BY ATS CLOUD PHOTOGRAPHY AND VERIFIED BY RADAR AND CONVENTIONAL AEROSOLS DATA

AUTHOR: BREDBURY, G L

SPONSORING AGENCY: DEPARTMENT OF GEOPHYSICAL SCIENCES/UNIVERSITY OF CHICAGO

SAT/LLITER: ATS-3 EXPERIMENT PERIOD: 19 APR 1968

OBJECT OF EXPERIMENT: IT IS THE PURPOSE OF THIS PAPER TO SHOW THAT ATS-3 CLOUD PICTURES CAN BE USED TO DETECT DRY LINES SOON AFTER THEY DEVELOP, LONG BEFORE THEY CAN BE PICKED UP BY RADAR AND TO FOLLOW THEIR LOCATIONS ON CONSECUTIVE FRAMES TO DETERMINE THEIR MOTION AND DEVELOPMENT. THE ATS-3 PICTURES WERE COMBINED WITH CONVENTIONAL SURFACE AND UPPER-AIR DATA TO STUDY THE THREE DIMENSIONAL STRUCTURE OF THE COOL DRY LINE AND TO VERIFY THE DEVELOPMENT AND MOVEMENT OF THE DRY LINE.

ABSTRACT: A SERIES OF ATS-3 CLOUD PICTURES TAKEN ON 19 APRIL 1968 SHOWS THE FORMATION, DEVELOPMENT, AND MOVEMENT OF A DRY LINE. THE LINE WAS DETECTED ON THE ATS-3 PICTURES LONG BEFORE IT WAS OBSERVED ON CONSECUTIVE ATS-3 PICTURES AT 14 MIN INTERVALS OVER A PERIOD OF SIX AND ONE HALF HOURS. A VERTICAL CROSS SECTION THROUGH THE DRY LINE SHOWS THAT THE ISENTROPIC LAYER EXTENDED UP TO 7 MS SL SURFACE AND THAT THE DRY LINE WAS NEARLY VERTICAL UP TO THIS HEIGHT. THE VERTICAL DISTRIBUTION OF THE HORIZONTAL WINDS IN THE CROSS SECTION INDICATE JET MAXIMA AT THREE DIFFERENT LEVELS, 2 T AND ABOVE THE 6 MS SURFACE. IN ADDITION TO THE LOW LEVEL JET LOCATED BETWEEN 4T AND 5T MS, THE JET MAXIMA MOST CLOSELY ASSOCIATED WITH THE INTENSE CONVECTIVE ACTIVITY APPEARS TO BE CENTERED BETWEEN 6T AND 5T MS.

SUBJECT: METEOROLOGY

KEYWORDS: DRY LINE; ATS-3; CLOUDS; PHOTOGRAPHY; RADAR DATA; METEOROLOGY; WINDS

TECHNICAL REPORT NUMBER: 60 UNIVERSITY OF DAYTON ACCESS NUMBER: 1.4

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DATE OF DOCUMENT/TITLE: DEC 1969 / TECHNICAL REPORT

TITLE OF DOCUMENT: IN- AND OUTFLOW FIELD OF HURRICANE DEBBIE AS REVEALED BY ECHO AND CLOUD VELOCITIES FROM AIRBORNE RA  
DAR AND ATS-3 PICTURES

AUTHOR: FUJITA, T T; BLACK, P G

SPONSORING AGENCY: DEPARTMENT OF GEOPHYSICAL SCIENCES/UNIVERSITY OF CHICAGO; NATIONAL HURRICANE RESEARCH LABORATORY/MI  
AMI, FLORIDA

SATELLITE: ATS-3 EXPERIMENT PERIOD: 20 AUG 1969

OBJECT OF EXPERIMENT: TO PRODUCE A COMPLETE AND DETAILED ANALYSIS OF THE INFLOW AND OUTFLOW FIELDS IN HURRICANE DEBBIE ON  
AUGUST 20, 1969

ABSTRACT: COMPLETE ANALYSIS OF THE INFLOW AND OUTFLOW FIELDS IN HURRICANE DEBBIE ON AUGUST 20, 1969, USING AI  
RBORNE RADAR AND ATS-3 SATELLITE PICTURES TOGETHER WITH AIRCRAFT AND SYNOPTIC WIND DATA. RADAR ECHO  
VELOCITIES HAVE BEEN COMPUTED USING FUJITA'S TIME-LAPSE FILM-LOOP TECHNIQUE AND RADIAL PROFILES CO  
NSTRUCTED FOR FOUR QUADRANTS OF THE STORM. THEIR SPATIAL DISTRIBUTION HAS BEEN PLOTTED AND USED AS  
AN INDICATION OF THE LOW LEVEL FLOW FIELD WITHIN 150 N. MILES OF THE STORM CENTER.

SUBJECT: METEO-CLOUDY

KEYWORDS: HURRICANE; HURRICANE DEBBIE; CLOUDS; ATS-3; RADAR DATA; PHOTOGRAPHY; CLOUD MOTION

UNIVERSITY OF DAYTON ACCESS NUMBER: 175

DATE OF DOCUMENT/TYPE: APR 1967 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE ATS-1 SPIN-SCAN CAMERA EXPERIMENT

AUTHOR: SUNDELLIN, M S

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER/NASA

SATELLITE: ATS-1

EXPERIMENT PERIOD: 1967

OBJECT OF EXPERIMENT: TO OBTAIN A SYNOPSIS PICTURE OF THE EXISTING METEOROLOGICAL SITUATION, AND BY PROPER MANIPULATION OF THE RECEIVED DATA, TO OBTAIN SEQUENTIAL PICTURES, OR EVEN SIMULATE TIME-LAPSE PHOTOGRAPHY

ABSTRACT:

EXPERIMENTAL INVESTIGATION OF THE POSSIBILITY OF OBTAINING MORE REALISTIC DATA ON WEATHER MOTIONS BY MEANS OF A SPIN-SCAN CAMERA FOR THE ATS-1 SATELLITE. IN THIS EXPERIMENT, A HIGH RESOLUTION PICTURE OF THE EARTH'S DISK IS MADE, COVERING THE EARTH'S DISK FROM LATITUDE 50 DEGREES N TO 50 DEGREES S WHERE THE EARTH SUBTENDS AN ANGLE OF 17.3 DEGREES. THE PICTURES ARE ESSENTIALLY INSTANTANEOUS AS FAR AS METEOROLOGICAL CONTENTS ARE CONCERNED, EACH PICTURE BEING COMPLETED IN 20 MINUTES. THE DATA ARE TRANSMITTED TO GROUND RECEIVING STATIONS UPON ACQUISITION, AND SO NO DATA STORAGE IS REQUIRED IN THE SATELLITE. WITH THE SYNCHRONOUS ORBIT OF THE SATELLITE, IT IS THUS POSSIBLE TO OBTAIN A SYNOPSIS PICTURE OF THE EXISTING METEOROLOGICAL SITUATION, AND BY PROPER MANIPULATION OF THE RECEIVED DATA, TO OBTAIN SEQUENTIAL PICTURES, OR EVEN SIMULATE TIME-LAPSE PHOTOGRAPHY.

SUBJECT: METEOROLOGY

KEYWORDS: SPIN-SCAN CAMERA; ATS-1; CAMERA; METEOROLOGY; PHOTOGRAPHY; WEATHER

UNIVERSITY OF DAYTON ACCESS NUMBER: 1.6

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DATE OF DOCUMENT/TYPE: AUG 1959 / TECHNICAL REPORT  
TITLE OF DOCUMENT: COMPARISONS OF MEASUREMENTS OF CLOUD MOTIONS  
AUTHOR: STEEBRENNY, S M; BRAIN, A E; MADFIELD, R G  
SPONSORING AGENCY: STANFORD RESEARCH INSTITUTE/MENLO PARK, CALIFORNIA  
SATELLITE: ATS-1, ATS-3

EXPERIMENT PERIOD: APR 67 - APR 68

OBJECT OF EXPERIMENT: TO CONSTRUCT A PROPOSED LOW-COST OPTICAL APPARATUS CAPABLE OF MEASURING CLOUDS DISPLACEMENTS FROM ATS CLOUD PHOTOGRAPHS. MEASUREMENTS OF CLOUD DISPLACEMENTS WERE MADE AND COMPARED WITH SIMILAR MEASUREMENTS PREVIOUSLY OBTAINED BY A VIDEO SYSTEM (UNDER ESSA CONTRACT 193-66).

ABSTRACT: AN OPTICAL APPARATUS WAS DESIGNED AND CONSTRUCTED WITH WHICH TO STUDY CHANGES IN CLOUD DETAIL AND TO MEASURE CLOUD DISPLACEMENT. WITH THIS APPARATUS FOUR CLOUD PHOTOGRAPHS FROM ATS METEOROLOGICAL SATELLITES CAN BE PROJECTED INDIVIDUALLY, OR SIMULTANEOUSLY; TIME-LAPSE CAN BE SIMULATED. COULD NOT BE COMPARED WITH MEASUREMENTS PREVIOUSLY OBTAINED WITH VIDEO CONSOL. WERE COMPARED WITH MEASUREMENTS OBTAINED BY THE OPTICAL SYSTEM. THE COMPARISONS ARE EXPRESSED AS DIFFERENCES IN DIRECTION AND SPEED OF CLOUD MOTIONS MEASURED WITH BOTH SYSTEMS FOR THE SAME DATA SAMPLE FROM ATS-1 AND ATS-3 PHOTOGRAPHS OF CLOUD COVER.

CONCLUSIONS: THE COMPARISON BETWEEN MEASUREMENTS MADE WITH THE VIDEO SYSTEM AND THE OPTICAL SYSTEM SHOWED THAT 75% OF THE ATS-1 SAMPLE (25 CLOUD ELEMENTS) APPROXIMATELY 80% OF THE SPEED DIFFERENCES DID NOT EXCEED 4 KNOTS. FOR THE ATS-3 SAMPLE (16 CLOUD ELEMENTS) 80% OF THE SPEED DIFFERENCES WERE WITHIN 4 KNOTS AND 80% WERE WITHIN 11 KNOTS. DIRECTION DIFFERENCES FOR ATS-1 DATA DID NOT EXCEED 14 DEGREES IN 80% OF THE CASES. FOR THE ATS-3 DATA, DIRECTION DIFFERENCES DID NOT EXCEED 24 DEGREES IN 80% OF THE CASES. ON THE BASIS OF THESE RESULTS THE MEASURING ABILITY OF THE TWO SYSTEMS SEEMS TO BE COMPARABLE. NO SYSTEMATIC DEPENDENCE UPON CLOUD SIZE WAS FOUND EITHER FOR DIFFERENCES IN DIRECTION OR SPEED.

SUBJECT: METEOROLOGY

KEYWORDS: CLOUDS; ATS-1; ATS-3; METEOROLOGY; VIDEO LINK; PHOTOGRAPHY; DISPLACEMENT; CLOUD MOTION

UNIVERSITY OF DAYTON ACCESS NUMBER: 1.7

DATE OF DOCUMENT/TYPE: APR 1969 / TECHNICAL REPORT

TITLE OF DOCUMENT: METEOROLOGICAL SATELLITE STUDY ON THE DEVELOPMENT OF TORNADO-PRODUCING THUNDERSTORMS

AUTHOR: NINOMIYA, K

SPONSORING AGENCY: UNIVERSITY OF CHICAGO

SATELLITE: ATS-3 EXPERIMENT PERIOD: 23 APR 1969

OBJECT OF EXPERIMENT: TO REVEAL SYNOPSIS AND DYNAMICAL CONDITIONS GIVING RISE TO MODERATE TO INTENSE STORMS OVER THE MIDWEST

ABSTRACT: A MESOSCALE DYNAMIC AND SYNOPTIC STUDY OF THE TORNADO-PRODUCING THUNDERSTORMS ON 23 APRIL 1969 IS MADE BY USING CONVENTIONAL SURFACE AND UPPER-AIR DATA COMBINED WITH ATS-3 DATA. A SERIES OF MESOSCALE DISTURBANCES WITH A PERIOD OF 2-3 HOURS AND 6-11 KT PHASE SPEED SEEMS TO BE RELATED TO THE CONVECTIVE ACTIVITY. THE CHARACTERISTIC MAGNITUDE OF CONVERGENCE OF THE DISTURBANCE IS OF THE ORDER OF 1.0-1.5/SEC. STRONG OUTFLOW WAS OBSERVED IN THE HIGHER TROPOSPHERE OVER THE STORM AREA. THE OUTFLOW WAS ASSOCIATED WITH THE SWELLING OF THE ISOBARIC SURFACE DUE TO THE CONVECTIVE WARMING IN THE MID-TROPOSPHERE. THE VERTICAL EXCHANGE OF MOMENTUM DUE TO THE SEVERE CONVECTION IS ALSO DISCUSSED.

CONCLUSIONS: THE TORNADO-PRODUCING THUNDERSTORMS OF 23 APRIL 1969 DEVELOPED UNDER THE UNSTABLE SITUATION BROUGHT ABOUT BY THE MOIST AND WARM SOUTHERN FLOW IN THE LOWER TROPOSPHERE AND THE EASTWARD MOVEMENT OF THE CUT-OFF COLD FRONT. THE STORMS ARE CHARACTERIZED BY ADJACENT MESOSCALE CONVERGENCE AND DIVERGENCE AREAS IN THE LOW LEVEL AND THE HIGH-LEVEL OUTFLOW WITH THE MESOSCALE WARM CORE IN THE MID-TROPOSPHERE. THE ROLE OF THE VERTICAL MOMENTUM MIXING DUE TO THE ACTIVE CONVECTIVE MOTION IN THE DYNAMICAL BALANCE OF THE STORM SYSTEM IS SUGGESTED BY THE ANALYSIS. MORE DETAILED ANALYSIS BASED ON THE DENSE R NETWORK IS NECESSARY TO CONFIRM THE DYNAMICAL ASPECT.

SUBJECT: METEOROLOGY

KEYWORD: TORNADO; STORM; METEOROLOGY; WEATHER; ATS-3; TORNADO WATCH; THUNDERSTORM

UNIVERSITY OF DAYTON ACCESS NUMBER: 126

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DATE OF DOCUMENT/TYPE: MAR 1968 / TECHNICAL REPORT

TITLE OF DOCUMENT: A STUDY OF MESOSCALE CLOUD MOTIONS COMPUTED FROM ATS-1 AND TERRESTRIAL PHOTOGRAPHS

AUTHOR: FUJITA, TS; BEADBOFF, D L; MURINO, ST; MULL, L

SPONSORING AGENCY: UNIVERSITY OF CHICAGO, ST. LOUIS UNIVERSITY

SATELLITE: ATS-1 EXPERIMENT PERIOD: 15 MAR 1967

OBJECT OF EXPERIMENT: TO IDENTIFY AND INTERPRET THE CLOUD ELEMENTS APPEARING IN A SERIES OF PICTURES TAKEN AT 23-MINUTE INTERVALS

#### ABSTRACT:

IN ORDER TO DESCRIBE THE LARGE-SCALE CLOUD PATTERNS OVER THE CENTRAL NORTH PACIFIC, AN ATS-1 PICTURE TAKEN BETWEEN 1354 AND 1414 MST 15 MARCH 1967 WAS GRIDDED WITH 1-DEGREE LONGITUDE AND 15-MINUTE INTERVALS. HAWAII IS SITUATED TO THE SOUTHEAST OF A WELL-DEVELOPED CYCLONE CENTERED NEAR 35N 170W. A LONG, ENVIL-LIKE PLUME EMANATING FROM A LARGE CELLULAR CLOUD WAS PASSING OVER HAWAII, GIVING THE IMPRESSION THAT THE PLUME WAS EMBEDDED IN A STRONG JET STREAM PASSING OVER THE ISLAND.

BOTH THE 300- AND 500-MB CHARTS AT 1414 MST ON 15 MARCH 1967 WERE ANALYZED. IT IS SEEN THAT A WELL-DEVELOPED LOW TO THE NORTHWEST OF HAWAII APPEARS ON THE 500-MB CHART AS A VERY SMALL, CLOSED CIRCULATION WHICH DID NOT EXTEND TO 30 MB. A BLOCKING HIGH, SOMEWHAT LIKE THAT DEFINED BY KEN (1965), EXTENDED FAR TO THE NORTH OF HAWAII NEAR 160W. THE SOUTHERN BRANCH OF THE JET STREAM, SPLIT BY THE BLOCKING HIGH, EXTENDED FROM NORTH OF HAWAII TOWARD THE WEST COAST OF THE UNITED STATES. AT 30 MB, THE MAXIMUM WIND SPEED ALONG THE JET AXIS WAS OVER 11 KT. AT THE 500-MB LEVEL, THE WIND MAXIMUM WAS LOCATED BETWEEN HAWAII AND 120W. WEST OF THE BLOCKING HIGH, A JET STREAM WAS SEEN OVER JAPAN ON BOTH THE 30- AND 500-MB CHARTS.

WHEN THESE JET-STREAM PATTERNS ARE COMPARED CLOSELY WITH THE ATS-1 PICTURE TAKEN WITHIN 10 MINUTES OF THE 1414 MST MAP TIME, IT WAS FOUND THAT THERE APPEARS TO BE NO JET-STREAM CIRCUS IN THE AREA OF THE JET STREAM EXTENDING EASTWARD FROM JAPAN. EVEN A TIME-LAPSE MOVIE MADE FROM AN ATS-1 PICTURE SEQUENCE DID NOT SHOW ANY FAST-MOVING, HIGH CLOUDS OVER THE EXPECTED JET POSITION. THE ATS-1 PICTURE CLEARLY SHOWS A LONG-PLUME-LIKE BAND OF CLOUDS EXTENDING EAST-NORTHEAST FROM ABOUT 21N 175W TO CALIFORNIA, PASSING OVER HAWAII. SIGNIFICANT MOTION OF CLOUD ELEMENTS WITHIN THIS LONG BAND WILL BE SEEN ON AN ATS-1 TIME-LAPSE MOVIE.

#### CONCLUSIONS:

PRESENTED ARE THE RESULTS OF THE COMPUTATION OF CLOUD VELOCITIES FROM A SERIES OF ATS-1 PICTURES. A LOCAL AREA NEAR HAWAII WAS SELECTED FOR SUCH COMPUTATION BECAUSE A STEREO-CAMERA NETWORK WAS OPERATED ON TOP OF MALEAKALI ON MAUI. INDEPENDENT COMPUTATION OF CLOUD VELOCITIES FROM TERRESTRIAL PHOTOGRAPHY REVEALED THAT THE VELOCITIES OF MIDDLE CLOUDS COMPUTED FROM BOTH ATS-1 AND TERRESTRIAL PHOTOGRAPHS ARE VERY CLOSE TO EACH OTHER. THESE CLOUD VELOCITIES WERE FOUND TO REPRESENT APPROXIMATELY THE WIND VELOCITIES AT THE CLOUD LEVELS.

AN ATTEMPT WAS MADE TO IMPROVE LOCAL UPPER-AIR ANALYSIS BY ADDING THE CLOUD VELOCITIES ON UPPER-LEVEL CHARTS EVEN THOUGH THE HEIGHTS OF THE CLOUDS WERE NOT KNOWN ACCURATELY. IT WAS FOUND THAT CLOUD VELOCITIES ARE VERY USEFUL IN DETERMINING THE MESOSCALE FIELD OF AIR MOTIONS WHICH AFFECT THE CLOUD MOTIONS.

SUBJECT: METEOROLOGY

KEYWORDS: CLOUDS; ATS-1; METEOROLOGY; CAMERA; PHOTOGRAPHY

TECHNICAL REPORT NUMBER: 8.

UNIVERSITY OF DAYTON ACCESS NUMBER: 1.8

DATE OF DOCUMENT/TYPE: SEP 1969 / TECHNICAL REPORT

TITLE OF DOCUMENT: EXPERIMENTS WITH THE ATS-3 SATELLITE IN REGARD TO FUTURE APPLICATIONS OF NAVIGATIONAL SATELLITES FOR SHIPS

AUTHOR: FÖRBAUER, F; GOEBEL, W; RAAB, M; MUNNENBERG, M

SPONSORING AGENCY: INSTITUTE FOR SATELLITE ELECTRONICS/WEST GERMANY

SATELLITE: ATS-3 EXPERIMENT PERIOD: 1968

OBJECT OF EXPERIMENT: TO OBTAIN EXPERIMENTAL DATA ON THE USE OF SATELLITES IN AERONAUTICAL AND MARITIME RADIO LINKS

ABSTRACT: DURING TWO EXPEDITIONS OF THE RESEARCH SHIP METEOR IN 1968, VHF COMMUNICATIONS VIA THE SATELLITE AT S-3 HAVE BEEN TESTED. THE EXPERIMENTS REPRESENT THE GERMAN CONTRIBUTION TO INTERNATIONAL EFFORTS FOR GETTING EXPERIMENTAL DATA ON THE USE OF SATELLITES IN AERONAUTICAL AND MARITIME RADIO LINKS. THE FOLLOWING EXPERIMENTS WERE PERFORMED UNDER SHIPBOARD CONDITIONS USING OPTIONALLY A LOW COST COMPARABLE RADIO TELEPHONE DEVICE: (1) ANTENNA PATTERN MEASUREMENTS (VERTICAL PLANE) BY REFLECTIONS (WITHOUT SATELLITE), (2) MEASUREMENT OF LINK PROPERTIES BY SIGNAL TO NOISE RATIOS, (3) VOICE-TESTS, (4) SET A TRANSMISSION WITH PCM AND TELETYPE-CODE, AND (5) LINE OF POSITION BY LIFE-TONE-RANGING MEASUREMENTS. ADDITIONAL EXPERIMENTS FROM THE BUILDING OF THE INSTITUTE AT DVLB IN DRESDEN-OPEN WERE PERFORMED. IT IS EMPHASIZED THAT FURTHER EXPERIMENTS IN THE L-BAND (1.6 GHz) ARE DESIRABLE.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION VOICE COMMUNICATION

KEYWORDS: ATS-3; NAVIGATION; SHIPS; ANTENNA; DATA TRANSMISSION; VOICE COMMUNICATION; METEOR; VHF; COMMUNICATIONS

UNIVERSITY OF DALLAS ACCESS NUMBER: 112

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DATE OF DOCUMENT/TYPE: SEP 1970 / TECHNICAL REPORT

TITLE OF DOCUMENT: A PILOT STUDY ON THE APPLICATION OF GEOSYNCHRONOUS METEOROLOGICAL SATELLITE DATA TO VERY SHORT RANGE TERMINAL FORECASTING

AUTHOR: WUNDERMAN, T M GRAM, R S

SPONSORING AGENCY: UNIVERSITY OF WISCONSIN

SATELLITE: ATS-3

EXPERIMENT PERIOD: 1 APR 76 - 31 AUG 76

OBJECT OF EXPERIMENT: (1) TO ASSEMBLE A UNIFIED BODY OF DATA FROM BOTH GEOSYNCHRONOUS SATELLITE MEASUREMENTS AND CONVENTIONAL METEOROLOGICAL OBSERVATIONS IN ORDER TO ALLOW A TEST OF THE USEFULNESS OF THE NEW TYPE OF SATELLITE DATA FOR IMPROVING TERMINAL CEILING AND VISIBILITY FORECASTS;  
(2) TO EXPERIMENT WITH THE CONSTRUCTION OF ARRAYS OF QUANTITATIVE DESCRIPTORS OF THE SATELLITE RADIANCE MEASUREMENTS.

ABSTRACT: THE STUDY ASSEMBLES A UNIFIED BODY OF DATA CONSISTING OF VERY HIGH SPACE AND TIME RESOLUTION REFLECTED RADIANCE MEASUREMENTS FROM A GEOSYNCHRONOUS SATELLITE (ATS-3) ALONG WITH CONCURRENT METEOROLOGICAL DATA, CEILING, VISIBILITY AND SURFACE PRESSURE REPORTS AT SELECTED AIR TERMINALS IN THE CENTRAL UNITED STATES. THIS DATA SET ALLOWS FAMILIARIZATION WITH THE METEOROLOGICAL POTENTIAL OF NEARLY CONTINUOUS OBSERVATION OF CLOUD CONDITIONS FROM A GEOSYNCHRONOUS PLATFORM. IT MAY ALSO SERVE AS INITIAL INPUT TO QUANTITATIVE TECHNIQUES FOR EVALUATING THE SATELLITE DATA AND/OR FOR TESTING ITS USEFULNESS IN VERY SHORT RANGE WEATHER FORECASTING. IN THIS REGARD, A SECOND PORTION OF THE STUDY PRESENTS ARRAYS OF STATISTICAL DESCRIPTORS OF THE SATELLITE DATA.

SUBJECT: METEOROLOGY

KEYWORDS: METEOROLOGY; ATS-3; FORECASTING; RADIATION

TECHNICAL REPORT NUMBER: AFOSL-7-1493

UNIVERSITY OF DAYTON ACCESS NUMBER: 111

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DATE OF DOCUMENT/TYPE: MAR 69

/ PROCEEDINGS

TITLE OF DOCUMENT: A REVIEW OF THE IMAGE DISSECTOR METEOROLOGICAL CAMERAS AND VIEW OF THEIR FUTURE

AUTHOR: KOENIG, E.W.; BRANCHFLOWER, G.B.

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER; GREENBELT, MARYLAND

SATELLITE: ATS-3

ABSTRACT:

DESCRIPTION OF THE OPERATION AND ACHIEVEMENTS OF THE ATS-III IOC (APPLICATIONS TECHNOLOGY SATELLITE III IMAGE DISSECTOR CAMERA) AND THE Nimbus IDCS (IMAGE DISSECTOR CAMERA SYSTEM). THE ATS III CONTAINS AN IMAGE DISSECTOR, A SUN SENSOR FOR THE SPIN RATE, AND THE ELECTRONICS REQUIRED TO SYNCHRONIZE CAMERA TIMING AND OPERATION WITH SPACECRAFT SPIN, AND TO OBTAIN PROPER PHASING FOR EARTH VIEWING. ONCE INITIAL PHASE HAS BEEN OBTAINED FROM THE GROUND, THE CAMERA GENERATES ONE LINE OF VIDEO WITH EACH SPACECRAFT ROTATION AND IS UNIQUE IN THAT THE IOC OUTPUT CONTAINS ALL THE FRAME AND LINE SYNC INFORMATION NECESSARY TO DISPLAY THE VIDEO WITH A MINIMUM OF SPECIAL GROUND SUPPORT EQUIPMENT. THE Nimbus IDCS IS AN 800 TV LINE SYSTEM WITH A LINE RATE OF 4 Hz AND A VIDEO BANDWIDTH OF 100 MHz. THE VIDEO WILL BE TRANSMITTED TO EARTH IN REALTIME A/VFM WITH AN AN SJR/CFR/IFF OF 26 dB AND WILL BE SIMULTANEOUSLY RECORDED ON SPACECRAFT RECORDERS. CAMERA RESOLUTION IS 25% AT 800 TV LINES, AND THE OUTPUT VIDEO HAS A HIGHLIGHT S/N OF 31 DB(DP-P/RS). SOME APPLICATIONS OF THE IMAGE DISSECTOR CAMERA ARE DISCUSSED, THE MOST IMPORTANT BEING ITS POTENTIAL USE AS AN EARTH RESOURCES SENSOR.

B.M.

SUBJECT: SATELLITE OPERATION

KEYWORDS: ATS-3; IMAGE DISSECTOR; SPIN-SCAN CAMERA; CAMERA; SUN SENSOR; EARTH RESOURCES SENSOR; SPACECRAFT

UNIVERSITY OF DAYTON ACCESS NUMBER: 112

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DATE OF DOCUMENT/TYPE: AUG 67 / PROGRESS REPORT

TITLE OF DOCUMENT: SATELLITE NAVIGATION STUDIES

AUTHOR: MORITA, Y; ZNAS, F; COLLING, D

SATELLITE: ATS-1, ATS-3

ABSTRACT:

THIS PROGRESS REPORT COVERS THE PERIOD FROM 1 APRIL 1967 THROUGH 30 JUNE 1967. A PRIMARY OBJECTIVE OF THIS NASA CONTRACT IS TO EXAMINE THE FEASIBILITY OF VARIOUS MEANS OF FIXING AIRCRAFT AND SHIP POSITIONS THROUGH THE USE OF SATELLITES. A MAJOR EFFORT ON THIS CONTRACT HAS BEEN TO GENERATE A GENERAL POSITION-ERROR ANALYSIS SUITABLE FOR EXAMINING SATELLITE NAVIGATION SYSTEMS THROUGH THE USE OF DIGITAL COMPUTER MODELS. THIS REPORT DESCRIBES EFFORTS DURING THE CURRENT QUARTER REGARDING AIRCRAFT POSITIONAL FIXES USING THE VHF CHANNELS ON THE CURRENTLY OPERATIONAL SATELLITE ATS-1 AND THE SOON TO BE LAUNCHED SATELLITE ATS-3. THE DIGITAL COMPUTER MODEL IS BEING MODIFIED TO INCLUDE VHF PROPAGATION EFFECTS, AND THE MODEL WILL BE USED TO PREDICT EXPECTED AIRCRAFT POSITION FIXES. IN ADDITION, EQUIPMENT CHARACTERISTICS FOR USE ABOARD AIRCRAFT ARE BEING DELINEATED.

SUBJECT: NAVIGATION

KEYWORDS: ATS-1; APPLICATION TECHNOLOGY SATELLITE; POSITION FIXING; SATELLITE NAVIGATION; NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 116

DATE OF DOCUMENT/TYPE: AUG 69 / PROGRESS REPORT  
TITLE OF DOCUMENT: ATS RANGING AND POSITION FIXING EXPERIMENT  
AUTHOR: ANDERSON, R E  
SPONSORING AGENCY: GENERAL ELECTRIC COMPANY

SATELLITE: ATS-1; ATS-3

EXPERIMENT PERIOD: NOV 68 - AUG 69

ABSTRACT:

THIS PROGRESS REPORT FOR THE FIRST QUARTER OF WORK ON A NASA CONTRACT CONCERNED WITH RANGING AND POSITION FIXING. RANGE MEASUREMENTS WERE MADE FROM THE COMPANY'S RADIO-OPTICAL OBSERVATORY TO ATS-1 AND ATS-3. UNDER GOOD CONDITIONS THE STANDARD DEVIATION OF RANGE MEASUREMENTS IS APPROXIMATELY 0.5 MICROSECONDS FOR THE DIRECT RANGING SIGNAL FROM THE OBSERVATORY TO THE SATELLITE AND APPROXIMATELY 1.0 MICROSECONDS FOR THE RANGE MEASUREMENT. EQUIPMENT DESIGNS WERE CONFIRMED AND CERTAIN EQUIPMENT CONSTRUCTED.

SUBJECT: NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 115

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ORIGINAL FILED IN 1000 6/11/71

DATE OF DOCUMENT/TYPER: JUL 72 / PROGRESS REPORT

TITLE OF DOCUMENT: PERIODIC PROGRESS REPORT FOR ATS RANGING AND POSITION FIXING EXPERIMENTS

AUTHOR: ANDERSON, R. E.

SPONSORING AGENCY: GENERAL ELECTRIC CO.

SATELLITE: ATS-7 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: OCT 69-MAY 72

OBJECT OF EXPERIMENT: TO INVESTIGATE THE APPLICATION OF AN ATS TRANSPONDER AS A COMMUNICATIONS LINK FOR AIRCRAFT RANGING AND POSITION FIXING OVER THE NORTH ATLANTIC

ABSTRACT: THIS REPORT SUMMARIZES WORK DONE IN ESTABLISHING GROUND REFERENCE TRANSPONDERS AT SHANNON, IRELAND; ST. JOHN'S, NEWFOUNDLAND, AND SEATTLE, WASHINGTON. IT DESCRIBES LONG-TERM TESTS OF THE GROUND REFERENCE CALIBRATION TECHNIQUE. POSITION FIXING OF AIRCRAFT IN FLIGHT OVER A SHORT PERIOD OF TIME IS DEMONSTRATED.

SUBJECT: AIR TRAFFIC CONTROL AIRCRAFT COMMUNICATIONS DATA TRANSMISSION

KEYWORDS: ATS-7 RANGING; POSITION FIXING; NORTH ATLANTIC

UNIVERSITY OF DAYTON ACCESS NUMBER: 115

DATE OF DOCUMENT/TYPE: APR 77 / TECHNICAL REPORT

TITLE OF DOCUMENT: EXPERIMENT EVALUATION OF VHF FOR POSITION FIXING BY SATELLITE

AUTHOR: ANDERSON, P. E.

SPONSORING AGENCY: GENERAL ELECTRIC CO.

SATELLITE: ATS-1, ATS-2 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: SEP 66-JUN 69

SUBJECT OF EXPERIMENT: TO EVALUATE THE USE

ABSTRACT: THIS PAPER DESCRIBES A SERIES OF EXPERIMENTS IN WHICH THE VHF TRANSpondERS OF THE ATS-1 AND ATS-2 SATELLITES WERE USED IN HANDING AND POSITION FIXING EXPERIMENTS. AIRCRAFT, SHIPS, TRUCKS, AND AN ON LANDSCAPE STUDY WERE INVOLVED IN THE EXPERIMENTS.

SUBJECTS: AIR TRAFFIC CONTROL AIRCRAFT COMMUNICATIONS DATA TRANSMISSION

KEYWORDS: ATS-2 HANDING POSITION FIXING NORTH ATLANTIC

UNIVERSITY OF DAYTON ACCESS NUMBER: 117

E-100

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPER SEP 69 / PROPOSAL

TITLE OF DOCUMENT: A PROPOSAL FOR SATELLITE COMMUNICATIONS DEMONSTRATION FOR ALASKA

AUTHOR: THE STATE OF ALASKA

SPONSORING AGENCY: THE STATE OF ALASKA

SATELLITE: ATS COMMUNICATIONS: VHF/TV

EXPERIMENT PERIOD: OCT 69 - NOV 71

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE APPLICATION OF SATELLITE COMMUNICATION AS PRACTICAL AND EFFECTIVE FOR THE UNIQUE COMMUNICATIONS PROBLEM FOR THE STATE OF ALASKA IN EDUCATION

ABSTRACT: THIS PROJECT WILL DEMONSTRATE THE UTILITY OF SATELLITE DISTRIBUTION OF EDUCATIONAL AND OTHER TELECOMMUNICATION SERVICES OF PUBLIC INTEREST TO SPARSELY POPULATED AND SEPARATED RURAL AREAS. ADMINISTRATIVE PROCEDURAL DEVELOPMENT & PROGRAM EVALUATION WILL ALSO BE INCLUDED. IMPACT OF THE PROGRAM IS IN THE AREA OF EDUCATION ASSISTED BY TV & RADIO.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: EDUCATION; ALASKA; ATS-11 TELEVISION

UNIVERSITY OF DAYTON ACCESS NUMBER: 122

DATE OF DOCUMENT/TYPE: APR 71 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR EXPERIMENTAL USE OF ATS

AUTHOR: TJAULF, D R

SPONSORING AGENCY: NATIONAL PUBLIC RADIO, WASHINGTON, DC

SATELLITE: ATS COMMUNICATIONS: VHF

EXPERIMENT PERIOD: MAY 71 - MAY 72

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF COMMUNICATION SATELLITES IN THE TRANSMISSION OF PUBLIC RADIO PROGRAMS TO RADIO BROADCASTING STATIONS

ABSTRACT: WE PROPOSE THAT A RELAY LINK BE INAUGURATED BETWEEN NPR MEMBER PUBLIC RADIO STATION KUSO, COLLIERIE, ALASKA, AND ONE OF MORE LOCATIONS IN THE CONTINENTAL UNITED STATES. NPR RADIO PROGRAMS WOULD BE DELIVERED INITIALLY THROUGH CONVENTIONAL TERRESTRIAL CIRCUITS TO THE STANFORD UNIVERSITY SPACE RADIO FIELD SITE FOR TRANSMISSION A GROUND STATION THROUGH THE ATS-I SATELLITE TO A RECEIVING STATION ON THE CAMPUS OF THE UNIVERSITY OF ALASKA AT COLLEGE.

THE PROGRAM TO BE TRANSMITTED DURING THE EXPERIMENT IS TITLED "ALL THINGS CONSIDERED..." IT IS A PROGRAM OF CURRENT AFFAIRS DONE IN A "MAGAZINE" FORMAT WITH THE AIM OF PROVIDING INFORMATION IN DEPTH ABOUT THE IMPORTANT EVENTS, ISSUES, AND HAPPENINGS IN OUR SOCIETY.

SUBJECT: BROADCASTING

KEYWORDS: ATS-1; ALASKA; NATIONAL PUBLIC RADIO; BROADCASTING

UNIVERSITY OF DAYTON ACCESS NUMBER: 123

E-102

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPES: JAN 71 / PROPOSAL

TITLE OF DOCUMENT: HEALTH AND EDUCATION SATELLITE COMMUNICATIONS PROJECT PLAN

AUTHOR: THE STATE OF ALASKA

SPONSORING AGENCY: STATE OF ALASKA

SATELLITE: ATS COMMUNICATIONS: VHF

OBJECT OF EXPERIMENT: TO PROVIDE ADDITIONAL KNOWLEDGE NECESSARY TO DESIGN COMMUNICATIONS AND INSTRUCTIONAL SYSTEMS REQUIRED TO DELIVER IMPROVED MEDICAL CARE AND EDUCATIONAL PROGRAMS AND SERVICES PARTICULARLY TO REMOTE AREAS.

ABSTRACT: THE OVERALL PLAN OF THE EXPERIMENTS AND TEST DEMONSTRATIONS IS TO IDENTIFY NEW USES FOR COMMUNICATIONS FOR HEALTH CARE AND EDUCATION AND FACILITATE SUITABLE USES OF THEM BY THE RESIDENT MEDICAL AND EDUCATIONAL COMMUNITIES IN REMOTE AREAS. HARDWARE AND SYSTEMS DEVELOPMENT AND TESTS WILL BE CONDUCTED AT MEDICAL CENTERS AND UNIVERSITIES. AFTER TESTING, THE EQUIPMENT EXPERIMENTAL AND EDUCATIONAL PROGRAMS WILL BE MOVED INTO THE FIELD FOR OPERATIONS, DEMONSTRATIONS, AND FURTHER TESTING.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: HEALTH EDUCATION: ATS-11 BIOMEDICAL: ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 124

DATE OF DOCUMENT/TYPED: APR 73

/ CORRESPONDENCE

TITLE OF DOCUMENT:

CORRESPONDENCE ON THE HAWAII-ALASKA CLASSROOM EXCHANGE PROGRAM

AUTHOR:

NORTHUP, C M

SPONSORING AGENCY:

STATE OF ALASKA

SATELLITE: ATS

COMMUNICATIONS: VHF

EXPERIMENT PERIOD: MAY 73

OBJECT OF EXPERIMENT:

OBJECTIVE FOR THE EXPERIMENTS ARE TO MEASURE LENGTH OF VERBAL TRANSMISSION BETWEEN GRADE LEVELS. WE ASURE CHANGES IN VERBAL TRANSMISSION OVER A PERIOD OF TIME, AND PROVIDE CULTURAL AWARENESS THROUGH PEER GROUP EXCHANGES.

ABSTRACT:

THIS IS CORRESPONDENCE INVOLVED IN THE REQUEST FOR APPROVAL FROM MR. JESS BURKE, ATS DIRECTOR AT HA SA FROM CHARLES NORTHUP FOR A CLASSROOM EXCHANGE PROGRAM BETWEEN SCHOOL CHILDREN IN ALASKA AND HAWAII.

SUBJECT:

EDUCATIONAL APPLICATIONS

KEYWORDS:

EDUCATION: CLASSROOM: ALASKA: HAWAII: ATS-1

UNIVERSITY OF DAYTON ACCESS NUMBER: 125

E-104

ORIGINAL PAGE IS  
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DATE OF DOCUMENT/TYPE: JAN 69 / PROPOSAL

TITLE OF DOCUMENT: COMSAT'S PROPOSAL FOR IMPLEMENTING SATELLITE COMMUNICATIONS IN ALASKA

AUTHOR: COMSAT

SPONSORING AGENCY: COMSAT

SATELLITE: ATS COMMUNICATIONS: VHF, TV (MICROWAVE) EXPERIMENT PERIOD: 1969 - 1973

OBJECT OF EXPERIMENT: TO DEMONSTRATE FEASIBILITY OF SATELLITE COMMUNICATION IN ALASKA

ABSTRACT: THIS IS IN THE FORM OF A CONCISE OVERVIEW. COMSAT PROPOSES A THREE PHASE PROGRAM.  
PHASE ONE - DEMONSTRATION USING EXISTING SATELLITES AND EARTHSTATIONS TO PROVIDE COMMUNICATIONS  
S LINK TO "SOUTH SEA" AND PACIFIC COMMUNITY.  
PHASE TWO - TO PROVIDE INTRA-ALASKAN COMMUNICATION  
PHASE THREE - EXPANSION AND TRANSFER TO DOMESTIC SYSTEM

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: RTS-1; COMSAT; ALASKA; TELEVISION; MICROWAVES

UNIVERSITY OF DAYTON ACCESS NUMBER: 126

DATE OF DOCUMENT/TYPE: SEP 69 / PROPOSAL

TITLE OF DOCUMENT: PROPOSED SATELLITE TRANSMISSION TEST TO ANCHORAGE, ALASKA

AUTHOR: EPLICK, E M

SPONSORING AGENCY: AMERICAN BROADCASTING COMPANIES, INC., NEW YORK

SATELLITE: ATS COMMUNICATIONS TV

EXPERIMENT PERIOD: SEP 69 - MAR 70

SUBJECT OF EXPERIMENT: TO DEMONSTRATE THAT A SATELLITE SYSTEM IS ENTIRELY FEASIBLE AND RELIABLE TO PROVIDE INSTANTANEOUS NEWS AND PUBLIC AFFAIRS PROGRAMMING TO THREE TV STATIONS IN ANCHORAGE, ALASKA

ABSTRACT: THIS DOCUMENT DESCRIBES A TELEVISION RECEIVING STATION FOR USE AT ANCHORAGE, ALASKA, USING THE ATS-1 SATELLITE. A SYSTEM IS DESCRIBED WHICH WILL RECEIVE AN FM-MODULATED CARRIER AT A LOW LEVEL, AMPLIFY IT TO A SUITABLE LEVEL, AND DEMODULATE IT TO PRODUCE VIDEO AND SOUND BACKGROUND SIGNALS. EQUIPMENT FOR THIS STATION CAN BE INSTALLED AND OPERATING BY SEPTEMBER, 1969. THE SYSTEM INCLUDES A 33-FOOT DIAMETER PARABOLIC ANTENNA WITH LINEARLY POLARIZED FEED, A COOLED PARAMETRIC AMPLIFIER, A DOWN CONVERTER AND DEMODULATORS.

THIS PAPER INCLUDES BRIEF SYSTEM, HARDWARE, AND IMPLEMENTATION DESCRIPTIONS.

SUBJECT: BROADCASTING

KEYWORDS: ALASKA; TELEVISION; ATS-1

UNIVERSITY OF DAYTON ACCESS NUMBER 127

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ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPER: MAR 72 / PROGRESS REPORT  
 TITLE OF DOCUMENT: INFORMATION UPDATE ON ALASKA ATS EXPERIMENTS  
 AUTHOR: STANLEY, G M  
 SPONSORING AGENCY: GEOPHYSICAL INSTITUTE OF THE UNIVERSITY OF ALASKA; COLLEGE, ALASKA  
 SATELLITE: ATS COMMUNICATIONS: VHF EXPERIMENT PERIOD: AUG 71 - MAR 72  
 OBJECT OF EXPERIMENT: TO DETERMINE THE FEASIBILITY OF USING SATELLITES TO FURNISH COMMUNICATIONS IN ALASKA  
 ABSTRACT: THIS REPORT GIVES PARAGRAPH SUMMARIES OF THE MAJOR EXPERIMENTS IN ALASKA WITH ATS-1 ALONG WITH NAME  
 S AND ADDRESSES OF EXPERIMENT DIRECTORS.  
 SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
 MEDICAL/HEALTH APPLICATIONS  
 KEYWORDS: ALASKA; ATS-1; HIGHMEDICAL; EDUCATION; IONOSPHERE; NATIONAL PUBLIC RADIO; BROADCASTING  
 UNIVERSITY OF DAYTON ACCESS NUMBER: 129

DATE OF DOCUMENT/TITLE: DEC 65 / INFORMAL NOTES

TITLE OF DOCUMENT: WEATHER FACSIMILE (WEFAX) EXPERIMENT

AUTHOR: DUNNOND, R R; HALL, F

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO TRANSMIT PROCESSED WEATHER DATA VIA ATS-1. THE DATA ARE IN FACSIMILE FORMAT.

ABSTRACT: THIS DESCRIPTION OF THE WEATHER FACSIMILE (WEFAX) EXPERIMENT PRECEDED THE LAUNCH OF ATS-1. WHAT IS TO BE ACCOMPLISHED BY THE EXPERIMENT AS WELL AS HOW IT IS TO BE DONE IS DESCRIBED. THE MANAGEMENT OF THE EXPERIMENT IS ALSO DISCUSSED. NO RESULTS ARE GIVEN SINCE THIS AND SOUND BASEBAND SIGNALS. EQUIPMENT FOR THIS STATION CAN BE INST

SUBJECT: DATA TRANSMISSION METEOROLOGY

KEYWORDS: ATS-1; DATA TRANSMISSION; METEOROLOGY; WEFAX; FACSIMILE; WEATHER

UNIVERSITY OF DAYTON ACCESS NUMBER: 133

E-108

ORIGINAL PAGE IS  
OF POOR QUALITY



DATE OF DOCUMENT/TYPE: 1966-69 / HISTORICAL INFORMATION

TITLE OF DOCUMENT: HISTORICAL INFORMATION FOR ATS-1, 3, & 5

AUTHOR: BURKE, J

SPONSORING AGENCY: NASA-GSFC: GREENBELT, MARYLAND

SATELLITE: ATS-1: ATS-3: ATS-5

EXPERIMENT PERIOD: 1966-69

ABSTRACT: THIS DOCUMENT CONSISTS OF SEVERAL DOCUMENTS THAT DESCRIBE THE VARIOUS ATS SATELLITES. SATELLITE ENGINEERING CAPABILITY IS GIVEN AS WELL AS POSITION, TIME OF LAUNCH AND OTHER ORBITAL PARAMETERS.

SUBJECT: HISTORICAL INFORMATION

KEYWORDS: ATS-1: ATS-3: ATS-5: SATELLITE: GEOSYNCHRONOUS SATELLITE: APPLICATION TECHNOLOGY SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 132

E-110

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPE: 1968 / PROJECT DEVELOPMENT PLAN  
TITLE OF DOCUMENT: PROJECT DEVELOPMENT PLAN ATS-A THRU E  
AUTHOR: FREDYCE, J V  
SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND  
SATELLITES: ATS-11 ATS-31 ATS-5

EXPERIMENT PERIOD: 1968

ABSTRACT: THIS PROJECT DEVELOPMENT PLAN IS A NASA MANAGEMENT DOCUMENT. IT IS THE BASIC WORKING AGREEMENT FOR GODDARD SPACE FLIGHT CENTER. IT PROVIDES THE PROJECT MANAGER WITH A CHARTER AND DEFINES HIS SPECIFIC PLAN OF ACTION. THIS DOCUMENT SHOULD BE A GOOD SOURCE OF ATS HISTORICAL INFORMATION.

SUBJECT: HISTORICAL INFORMATION

KEYWORDS: ATS-11 ATS-31 ATS-5: APPLICATION TECHNOLOGY SATELLITES SATELLITE MANAGEMENT

UNIVERSITY OF DAYTON ACCESS NUMBER: 133

DATE OF DOCUMENT/TYPES: MAY 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: FIELD EVALUATION OF SELECTED ATS USER EXPERIMENTS

AUTHOR: KELLEHER, J J

SPONSORING AGENCY: NATIONAL SCIENTIFIC LABORATORIES, INC.; WESTGATE RESEARCH PARK; MCLEAN, VIRGINIA

SATELLITE: ATS-1; ATS-3

OBJECT OF EXPERIMENT: TO DETERMINE IF USERS ARE ACHIEVING THEIR OBJECTIVES AND WHAT BENEFITS, IF ANY, NASA MAY DERIVE FROM THE USER EXPERIMENT PROGRAM.

ABSTRACT: SELECTED ATS VHF USER EXPERIMENTS WERE EVALUATED ON THE SCENE TO OBTAIN FIRST-HAND INFORMATION ON PROGRESS AND STATUS, AND TO EVALUATE BENEFITS TO THE USERS AND TO NASA. VISITS WERE MADE TO RLE SMO, HAWAII, STANFORD UNIVERSITY, THE UNIVERSITY OF NEVADA, AND THE NATIONAL BUREAU OF STANDARDS. THE EXPERIMENTS AMPLY JUSTIFY NASA'S DECISION IN 1966 TO MAKE THE ATS SATELLITES AVAILABLE FOR SUCH EXPERIMENTS. USER BENEFITS ARE SUBSTANTIAL, BUT NOT OPTIMUM, DUE BOTH TO THE LOW LEVEL OF RESOURCES APPLIED IN CERTAIN USER EXPERIMENTS AND TO THE LIMITED POWER CAPABILITY OF THE SATELLITE. NEVERTHELESS, THE EXPERIMENTS PROVIDE A TEST-BED CAPABILITY WHICH IS INVALUABLE IN ASSESSING THE APPLICABILITY OF SATELLITES TO SPECIALIZED TELECOMMUNICATIONS REQUIREMENTS. EQUIPMENT CHARACTERISTICS FOR USE ABOARD AIRCRAFT ARE BEING

THIS REPORT DESCRIBES THE FINDINGS OF THE AUTHORS; THE VIEWS AND OPINIONS EXPRESSED HEREIN ARE NOT NECESSARILY THOSE OF THE NASA

CONCLUSIONS: USERS CONTACTED HAVE WELL DEFINED OBJECTIVES AND, IN GENERAL, SEEM TO BE MEETING THESE OBJECTIVES. UTILIZATION OF SATELLITES IS BECOMING SO ROUTINE THAT THERE IS THE DISTINCT POSSIBILITY OF ACQUISITION FOR REPLACEMENT WHEN THE TRANSFONDEPS FINALLY FAIL. THE NEED FOR LONG RANGE PLANNING IS RECOGNIZED BY MANY USERS AND POST-EXPERIMENT PLANNING IS NOW TAKING PLACE.

SUBJECT: EVALUATION OF USER EXPERIMENTS

KEYWORDS: ATS-1; ATS-3; APPLICATION TECHNOLOGY SATELLITE; USER EXPERIMENTS; SATELLITE COMMUNICATION; TELECOMMUNICATION

TECHNICAL REPORT NUMBER: 73-N-111

UNIVERSITY OF DAYTON ACCESS NUMBER: 134

E-112

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DATE OF DOCUMENT/TYPE: JAN 72 / INDEX OF USERS

TITLE OF DOCUMENT: SUMMARIES OF ATS USER EXPERIMENTS

AUTHOR: ROSENBERG, J D

SPONSORING AGENCY: NASA-GSFC GREENBELT, MARYLAND

SATELLITES: ATS-1; ATS-3; ATS-5

EXPERIMENT PERIOD: 1966-72

ABSTRACT: THIS FOLDER CONTAINS AN INDEX WITH SUMMARIES OF ABOUT 20 USER EXPERIMENTS PERFORMED FROM 1966-72. ALSO INCLUDED IS SOME HISTORICAL INFORMATION ON THE ATS PROGRAM. EACH SUMMARY SHEET DESCRIBES THE EXPERIMENT IN GENERAL TERMS.

SUBJECT: HISTORICAL INFORMATION

KEYWORDS: ATS-1; ATS-3; ATS-5; APPLICATION TECHNOLOGY; SATELLITES; USER EXPERIMENTS; SATELLITE USAGE

UNIVERSITY OF DAYTON ACCESS NUMBER: 135

/ TECHNICAL REPORT

TITLE OF DOCUMENT: APPLICATIONS TECHNOLOGY SATELLITE 1-5 PROGRAM SUMMARY

AUTHOR: UNKNOWN

SPONSORING AGENCY: NLS - GSEC, GREENBELT, MD.

SATELLITE: ATS-1: ATS-3: ATS-5

OBJECT OF EXPERIMENT: TO INVESTIGATE POTENTIAL COMMUNICATIONS USES FOR GEOSTATIONARY SATELLITES. EXPERIMENT PERIOD: 1966-71

ABSTRACT: THIS REPORT...

ANSTC:CT:

THIS REPORT IS A SUMMARY OF ATS 1-5 EXPERIENCE, INCLUDING THE SO-CALLED USER EXPERIMENTS. VOLUME 1 IS AN OVERVIEW OF THE ENTIRE ATS PROGRAM. VOLUMES 2 AND 3 CONTAIN A MORE DETAILED DISCUSSION OF THE SPECIFIC EXPERIMENTS, DATA COLLECTION TECHNIQUES AND ANALYSIS. REPORT CONTAINS AN EXTENSIVE BIBLIOGRAPHY OF ATS USER EXPERIMENT REPORTS.

**SUBJECT:**

AIR TRAFFIC CONTROL  
 AIRCRAFT ENGINEERING  
 EDUCATIONAL APPLICATIONS  
 MARITIME TRAFFIC CONTROL  
 METEOROLOGY  
 VOICE COMMUNICATIONS

AIRCRAFT COMMUNICATIONS  
 DATA TRANSMISSION  
 LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS  
 MEDICAL/HEALTH APPLICATIONS  
 NAVIGATION

JOURNAL TITLES

**VOL 1-3**

UNIVERSITY OF DAYTON ACCESS NUMBER 237

**E-114**

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OF POOR QUALITY**

DATE OF DOCUMENT/TYPER: 1969

/ PROGRESS REPORT

TITLE OF DOCUMENT: REPORT TO CONGRESS ON PURPOSE AND FUNCTION OF ATS EXPERIMENTS

AUTHOR: MEMELL, M E

SPONSORING AGENCY: NASA

SATELLITES: ATS-1: ATS-3: ATS-5

ABSTRACT: THIS IS A REPORT TO CONGRESS DESCRIBING THE ATS PROGRAM. THE OVERALL PROGRAM IS EXPLAINED. SATELLITE FUNCTION AND EXPERIMENTS TO BE PERFORMED ARE OUTLINED. THE REPORT CONTAINS PICTURES OF SATELLITES & DATES OF LAUNCH, COST, CAPABILITY, ETC. GIVES A GOOD HISTORICAL SUMMARY OF ATS PROGRAM.

SUBJECT: HISTORICAL INFORMATION

KEYWORDS: ATS-1: ATS-3: ATS-5: APPLICATION TECHNOLOGY SATELLITE: COMMUNICATIONS: SYNCHRONOUS SATELLITES

UNIVERSITY OF DAYTON ACCESS NUMBER: 159

DATE OF DOCUMENT/TYPER 1367 / RIELTOGRAPHY

TITLE OF DOCUMENT: DESCRIPTION OF ATSS

SPONSORING AGENCY: NASA-GSFC

SATELLITE: ATS-3

EXPERIMENT PERIOD: NOV 67- PRESENT

ABSTRACT: THIS REPORT GIVES PERTINENT FACTS ABOUT THE ATS-3 SATELLITE. DESCRIPTIONS OF EQUIPMENT AND DESIGN EXPERIMENTS ARE GIVEN.

SUBJECT: HISTORICAL INFORMATION

KEYWORDS: ATS-3; APPLICATION TECHNOLOGY SATELLITE; SPIN-SCAN CAMERA; OMEGA POSITION; WEATHER FACSIMILE; MICRO WAVE REPEATER

UNIVERSITY OF DAYTON ACCESS NUMBER: 139

E-116

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPE: APR 73 / INFORMAL NOTES  
 TITLE OF DOCUMENT: PROGRAM SCHEDULING OF ATS-1 FOR ALASKA EDUCATION EXPERIMENT  
 AUTHOR: BUCKWAY, PAUL CHARLIE, MC DINNICK, S  
 SPONSORING AGENCY: UNIVERSITY OF ALASKA  
 SATELLITE: ATS-1 EXPERIMENT PERIOD: APR 73 - JAN 74  
 ABSTRACT: INCLUDED IN THIS FOLDER ARE SEVERAL MONTHLY PROGRAM SCHEDULES FOR THE ALASKA EDUCATION EXPERIMENT. BASICALLY THESE CALENDEFS GIVE PROGRAM TITLE.  
 SUBJECT: HISTORICAL INFORMATION  
 KEYWORDS: ATS-1 ALASKA COMMUNICATIONS EDUCATION TELECOMMUNICATIONS APPLICATION TECHNOLOGY SATELLITE  
 UNIVERSITY OF DAYTON ACCESS NUMBER: 160

DATE OF DOCUMENT/TYPE: 1953-73

/ CORRESPONDENCE  
INFORMAL NOTES

TITLE OF DOCUMENT:

CORRESPONDENCE & NOTES FROM THE EARLY PLANNING PERIOD OF THE ALASKA EXPERIMENT

AUTHOR:

WIEBERT, E G; NORTHROP, C; ARNOLD, R D; POLLOCK, W W

SPONSORING AGENCY:

STATE OF ALASKA

SATELLITE: AT-1

ABSTRACT:

THIS SET OF NOTES & CORRESPONDENCE CONTAINS SEVERAL DOCUMENTS DEALING WITH THE PLANNING THAT WENT INTO THE ALASKA EXPERIMENT. INCLUDED IS A SUMMARY OF ALASKA CONFERENCE ON SATELLITE TELECOMMUNICATIONS HELD AUG 1953, A PLAN FOR TELECOMMUNICATIONS DEVELOPMENT IN ALASKA DATED OCT 1963, AND AN ANNUAL REPORT OF THE GOVERNOR OF ALASKA'S SATELLITE TASK FORCE DATED SEP 24, 1969.

SUBJECT:

HISTORICAL INFORMATION

KEYWORDS:

ATS-1; ALASKA; TELECOMMUNICATIONS; SATELLITE COMMUNICATIONS; NATIVE ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 1-1

E-118

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE OF DOCUMENT/TYPER 1971 / PROGRESS REPORT  
TITLE OF DOCUMENT: INTERIM ALASKA SATELLITE COMMUNICATIONS REPORT

AUTHOR: STATE OF ALASKA

SPONSORING AGENCY: STATE OF ALASKA

SATELLITE: ATS-1

ABSTRACT: THIS IS A PRELIMINARY REPORT TO ATTEMPT TO IDENTIFY ALASKA'S COMMUNICATION REQUIREMENTS. THE REPORT  
MIGHT CONTAIN SOME HISTORICAL INFORMATION. VERY LITTLE QUANTITATIVE DATA IS AVAILABLE BECAUSE THE  
TABLES THAT ARE REFERRED TO IN THE REPORT ARE MISSING.

SUBJECT: HISTORICAL INFORMATION

KEYWORDS: ALASKA; COMMUNICATIONS; TELECOMMUNICATIONS; SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 142

DATE OF DOCUMENT/TYPE: NOV 1969 / PROPOSAL

TITLE OF DOCUMENT: A PROPOSAL FOR SATELLITE COMMUNICATIONS DEMONSTRATION FOR ALASKA

AUTHOR: STATE OF ALASKA

SPONSORING AGENCY: STATE OF ALASKA

SATELLITE: ATS-1

ABSTRACT: THIS IS A PROPOSAL FOR USE OF ATS-1 FOR BOTH RADIO AND TELEVISION PROGRAMMING IN ALASKA. DESCRIBED IN THE PROPOSAL ARE PROGRAMMING, EXPECTED RESULTS, DISSEMINATION OF RESULTS, ADMINISTRATION, FUNDING AND DURATION. GROUND EQUIPMENT IS DESCRIBED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: ALASKA; ATS-1; SATELLITE; COMMUNICATIONS; TELECOMMUNICATIONS; TELEVISION; LITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 143

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DATE OF DOCUMENT/TYPES: JUN 72 / PROGRESS REPORT

TITLE OF DOCUMENT: AN EVALUATION OF SOME EDUCATIONAL USES OF ATS-1 IN ALASKA

AUTHOR: PAGEE, W B

SPONSORING AGENCY: ACTION STUDY OF EDUCATIONAL USES OF SATELLITE COMMUNICATIONS IN REMOTE ALASKAN COMMUNITIES ANCHORAGE, ALASKA

SATELLITE: ATS EXPERIMENT PERIOD: OCT 71 - JUN 72

OBJECT OF EXPERIMENT: ONE OF THE CHIEF AREAS ABOUT WHICH LITTLE IS KNOWN, OTHER THAN PROBABLE NEEDS, IS EDUCATIONAL STAFF CASTING. THE ACTION STUDY OF EDUCATIONAL USES OF SATELLITE TELECOMMUNICATIONS IN REMOTE ALASKAN COMMUNITIES WAS UNDERTAKEN AS AN ATTEMPT TO FIND SOME OF THE NEEDS AND TO ASSESS THEIR SCOPE.

ABSTRACT: COMMUNICATIONS IS A PROBLEM FOR EVERYONE IN ALASKA BUT MOST ESPECIALLY FOR THE RESIDENTS OF RURAL ALASKA. ADDED TO THE GENERALLY POOR QUALITY OF COMMUNICATIONS IS THE ADDITIONAL INJURY THAT THEY MUST PAY THE HIGHEST RATES FOR TELEPHONE SERVICE WHERE IT IS AVAILABLE. THE FEDERAL FIELD COMMITTEE FOR DEVELOPMENT PLANNING IN ALASKA, IN ITS STUDY ECONOMIC OUTLOOK FOR ALASKA 1971, ESTABLISHED POOR COMMUNICATIONS AS ALASKA'S NUMBER ONE INHIBITOR TO SOCIAL AND ECONOMIC DEVELOPMENT. PLANNING FOR THE ACTION STUDY WAS UNDERTAKEN IN THE SPRING AND SUMMER OF 1971. A CONSORTIUM OF 15 ORGANIZATIONS, INTERESTED IN EDUCATIONAL BROADCASTING AND IN RURAL ALASKA, WAS FORMED AND A PROJECT DIRECTOR NAMED IN AUGUST. THE ATS-1 SATELLITE IS THE SPACE VEHICLE USED. BROADCASTING BEGAN IN OCTOBER, 1971. THE PROJECT DIRECTOR, AN AUDIOLOGIST, AND ONE SECRETARY WERE THE ONLY FULL-TIME EMPLOYEES. TWO HOURS A DAY OF BROADCAST TIME WAS AVAILABLE. TECHNICAL PROBLEMS PLAQUED THE PROJECT IN ITS FIRST MONTHS. NO PERSON FROM THE PROJECT STAFF WAS ABLE TO VISIT THE VILLAGE SITES FOR THE FIRST THREE MONTHS. ATTEMPTS WERE MADE, DURING THE FIRST MONTHS OF THE PROJECT, TO INSTITUTE PROGRAMMING DIRECTLY INTO THE CLASSROOMS. THESE USUALLY FOUNDERED ON TECHNICAL DIFFICULTIES. THIS PAPER WILL EVALUATE THE MISTAKES AND SUCCESSES OF THE FIRST PROJECT PERIOD IN AN EFFORT TO FIND WAYS TO BETTER FORWARD THE VITAL MISSION WITH WHICH THE STUDY WAS ORIGINALLY CHARGED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; ALASKA; EDUCATION; VILLAGE SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 145

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DATE OF DOCUMENT/TYPE: JAN 72 / PROGRESS REPORT

TITLE OF DOCUMENT: INTERIM EVALUATION REPORT: PHASE I

AUTHOR: PARKER, M B

SPONSORING AGENCY: ACTION STUDY OF EDUCATIONAL USES OF SATELLITE COMMUNICATIONS IN REMOTE ALASKAN COMMUNITIES: ANCHORAGE, ALASKA

SATELLITE: ATS COMMUNICATIONS: WHF EXPERIMENT PERIOD: SEP 71 - DEC 71

OBJECT OF EXPERIMENT: TO STUDY EDUCATIONAL USES OF SATELLITE TELECOMMUNICATIONS IN REMOTE ALASKAN VILLAGES

ABSTRACT: THIS IS AN INTERIM REPORT ON EDUCATION, PUBLIC INFORMATION, AND NEWS PROGRAMS MADE AVAILABLE TO REMOTE ALASKAN VILLAGES THROUGH ATS-1 COMMUNICATIONS SYSTEMS. THE EVALUATION OF THE EDUCATIONAL PHASE IS QUITE DETAILED INCLUDING REFERENCES TO PERFORMANCE OBJECTIVES AND TEACHER TRAINING.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; ALASKA; EDUCATION; TEACHER TRAINING; VILLAGE HEALTH CARE

UNIVERSITY OF DAYTON ACCESS NUMBER: 169

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DATE OF DOCUMENT/TYPER OCT 69 / PROGRESS REPORT  
 TITLE OF DOCUMENT: PRELIMINARY REPORT ON TRANSCONTINENTAL TELEVISION  
 AUTHOR: GJULG. R  
 SATELLITE: ATSS: ATSS-3 COMMUNICATIONS: MICROWAVE, VHF EXPERIMENT PERIOD: OCT 69 - NOV 69  
 OBJECT OF EXPERIMENT: TO TEST THE EFFECTIVENESS OF SATELLITE LINK FOR COMMERCIAL TV CROSS CONTINENT BROADCASTING  
 ABSTRACT: THIS IS A RATHER TECHNICAL PAPER DEALING WITH TIME AND FREQUENCY ALLOCATION, EFFECTIVENESS OF COVER  
 AGE OF CONTINENTAL UNITED STATES, AND POWER RATING OF ATSS SATELLITE LINK FOR COMMERCIAL TV.  
 SUBJECT: BROADCASTING  
 KEYWORDS: ATSS-1: ATSS-3: TELEVISION: COLUMBIA BROADCASTING SYSTEM: BROADCASTING

UNIVERSITY OF DAYTON ACCESS NUMBER: 153

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OF FOUR QUARTERS

DATE OF DOCUMENT/TYPER: APR 69

/ PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR AN AFS CIRCUIT BETWEEN STANFORD AND BRAZIL

AUT-3-1 LUSIGNAN, B

SPONSORING AGENCY: STANFORD UNIVERSITY RADIO SCIENCE LAB: STANFORD, CALIFORNIA

SATELLITE: AFS-3 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: NOV 69 - OCT 70

OBJECT OF EXPERIMENT: TO ESTABLISH A TWO WAY LOW BAND-WIDTH LINK BETWEEN THE SCHOOL OF ENGINEERING AT STANFORD UNIVERSITY AND THE COMISSAO NACIONAL DE ATIVIDADES ESPACIAIS IN SAO JOSE DOS CAMPOS, SAO PAULO, BRAZIL.

ABSTRACT: IT IS PLANNED TO TRANSMIT A REGULARLY SCHEDULED LECTURE COURSE THROUGH THE SATELLITE USING TWO HOURS OF SATELLITE TIME. THIS WILL ALLOW SUFFICIENT TIME TO ESTABLISH THE SATELLITE LINK AND TO ENSURE THAT ALL EQUIPMENT IS OPERATING PROPERLY. WITH REGULAR OPERATIONS, THE ADDITIONAL HOUR WOULD ALSO BE USED FOR TECHNICAL TESTS AND FOR COMPUTER LINK UPS. THE EXPERIMENT SHOULD BE SCHEDULED TO RUN AT LEAST ONE QUARTER YEAR, TO ALLOW A COMPLETE COURSE TO BE SHAPED PRECEDED BY A MONTH OF INTERMITTENT TESTS WITH THE SATELLITE LINK.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS

KEYWORDS: STANFORD UNIVERSITY: BRAZIL: AFS-3

UNIVERSITY OF DAYTON ACCESS NUMBER: 151

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DATE OF DOCUMENT/TYPER: MAY 71 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR DISTRIBUTING COMPUTER AIDED INSTRUCTION TO RURAL AREAS

AUTHOR: SUPPES PI JAMISON D

SPONSORING AGENCY: STANFORD UNIVERSITY

SATELLITE: AFS-3 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: 15 MAY 71 - 15 JUNE 72

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE OPERATIONAL FEASIBILITY OF DISTRIBUTING CAI TO RURAL SCHOOLS VIA SATELLITE

ABSTRACT:

ADVANCES IN COMMUNICATION AND EDUCATION TECHNOLOGY HAVE MADE POSSIBLE TWO VERY ATTRACTIVE CLASSES OF EDUCATIONAL TECHNOLOGY. THE FIRST OF THESE IS THE DEVELOPMENT OF BROADCAST TECHNOLOGY BY WHICH RADIO OR TELEVISION PROGRAMS ORIGINATING AT A SINGLE POINT CAN BE DISTRIBUTED TO SEVERAL MILLION SIMULTANEOUS EDUCATIONAL USERS. THE SECOND OF THESE ADVANCES CENTERS AROUND POTENTIAL USE OF A HIGH SPEED DIGITAL COMPUTER TO PROVIDE INTERACTIVE INSTRUCTION, BY TAILORING INSTRUCTION TO AN INDIVIDUAL'S OWN NEEDS. INTERACTIVE INSTRUCTION VIA COMPUTER--EITHER ON-LINE (CPI) OR COMPUTER-ASSISTED INSTRUCTION (CMI) OR OFF-LINE (CMI) OR COMPUTER MANAGED INSTRUCTION--HAS FAR GREATER EDUCATIONAL POTENTIAL THAN BROADCAST TECHNOLOGY. CAI'S COSTS HAVE DECLINED TO THE POINT WHERE IT IS NOW ECONOMICALLY QUITE ATTRACTIVE FOR A NUMBER OF PURPOSES IN DEVELOPED COUNTRIES,\* AND CMI APPEARS TO HAVE POTENTIAL EVEN WITHIN THE EDUCATION BUDGETS OF LESS DEVELOPED COUNTRIES.

\*THIS PAPER IS A PROPOSAL FOR EVALUATING THE EFFECTIVENESS OF CAI TO REMOTE AND SCATTERED INSTALLATIONS.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS

KEYWORDS: AFS-3; EDUCATION; COMPUTER ASSISTED INSTRUCTION; RURAL AREAS

UNIVERSITY OF DAYTON ACCESS NUMBER: 152

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DATE OF DOCUMENT/TYPE: AUG 69 / PROPOSAL

TITLE OF DOCUMENT: PROPOSED SATELLITE TRANSMISSION TEST TO ANCHORAGE ALASKA

AUTHOR: ERICK, E M

SPONSORING AGENCY: AMERICAN BROADCASTING COMPANIES, INC; NEW YORK, N Y

SATELLITE: ATS COMMUNICATIONS: TV, FM EXPERIMENT PERIOD: SEP 69 - MAR 70

OBJECT OF EXPERIMENT: TO DEMONSTRATE THAT A SATELLITE SYSTEM FOR RADIO AND TELEVISION PROGRAM DISTRIBUTION TO ANCHORAGE ALASKA IS FEASIBLE AND RELIABLE.

ABSTRACT: IN THIS PAPER, ABC PROPOSES TO BROADCAST THE ABC EVENING NEWS, CERTAIN NCAA SPORTS EVENTS, AND SPECIAL APOLLO MOON SHOT EVENTS TO ANCHORAGE, ALASKA VIA ATS-1 SATELLITE

SUBJECT: BROADCASTING

KEYWORDS: ATS-1; BROADCASTING; ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 156

DATE OF DOCUMENT/TYPE: SEP 69 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR EXPERIMENTAL USE OF ATS

AUTHOR: MCCY, J W

SPONSORING AGENCY: CORPORATION FOR PUBLIC BROADCASTING

SATELLITE: ATS: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: OCT 69 - SEP 70

OBJECT OF EXPERIMENT: TO ESTABLISH THE EARLY USE OF AN ATS SATELLITE FOR EAST TO WEST AND WEST TO EAST TRANSCONTINENTAL COMMUNICATIONS LINK.

ABSTRACT: THE CORPORATION FOR PUBLIC BROADCASTING REQUESTS AN ATS SATELLITE CAPACITY BE FURNISHED FOR THE TRANSCONTINENTAL INTERCONNECTION. THIS EFFORT WOULD BE INTEGRATED WITH ALASKA AND AMERICAN BROADCASTING COMPANY EXPERIMENTS.

SUBJECT: BROADCASTING

KEYWORDS: ATS-1: ATS-3: ALASKA: CORPORATION FOR PUBLIC BROADCASTING: AMERICAN BROADCASTING COMPANY: TRANSCONTINENTAL INTERCONNECTION

UNIVERSITY OF DAYTON ACCESS NUMBER: 155

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DATE OF DOCUMENT/TYPER: FEB 71

TITLE OF DOCUMENT: TRANSCONTINENTAL INTERCONNECTION EXPERIMENT TEST SCHEDULE

AUTHOR: MINCHMAN, M R

SPONSORING AGENCY: CORPORATION FOR PUBLIC BROADCASTING

SATELLITE: ATS-3 COMMUNICATIONS: TV, VHF

EXPERIMENT PERIOD: JAN 72 - FEB 73

OBJECT OF EXPERIMENT: TO ESTABLISH THE EARLY USE OF AN ATS SATELLITE FOR EAST TO WEST AND WEST TO EAST TRANSCONTINENTAL COMMUNICATIONS LINK.

ABSTRACT: THIS PAPER IS A DAILY TEST AND OPERATING SCHEDULE FOR THE TRANSCONTINENTAL INTERCONNECTION EXPERIMENT.

SUBJECT: BROADCASTING

KEYWORDS: ATS-3; TRANSCONTINENTAL INTERCONNECTION; TELEVISION; CORPORATION FOR PUBLIC BROADCASTING

UNIVERSITY OF DAYTON ACCESS NUMBER: 156

DATE OF DOCUMENT/TYPES: MAR 70 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-3 VIDEO LINK TEST REPORT

AUTHOR: HUGHES AIRCRAFT CO

SPONSORING AGENCY: HUGHES AIRCRAFT CO EL SEGUNDO, CALIFORNIA

SATELLITE: ATS-3

EXPERIMENT PERIOD: FEB 70 - MAR 70

OBJECT OF EXPERIMENT: TO MEASURE THE TV TRANSMISSION QUALITY OF ATS-3 AND RELATED GROUND EQUIPMENT PRELIMINARY TO THE PCS  
ATS EXPERIMENT

ABSTRACT: THIS IS PART OF THE PUBLIC BROADCASTING CORPORATION EXPERIMENT WITH ATS AND IS A DETAILED ENGINEERING  
REPORT ON NOISE, GAIN, AND WAVE FORM FIDELITY OF A TV LINK VIA ATS-3.

SUBJECT: BROADCASTING

KEYWORDS: ATS-3; PUBLIC BROADCASTING CORPORATION; TELEVISION; VIDEO LINK

UNIVERSITY OF DAYTON ACCESS NUMBER: 157

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DATE OF DOCUMENT/TYPER: MAY 71 / TECHNICAL REPORT  
TITLE OF DOCUMENT: TRANSCONTINENTAL TELEVISION RELAY DEMONSTRATIONS USING ATS-1 AND ATS-3 SATELLITES  
AUTHOR: TEMPLETON, L M  
SPONSORING AGENCY: HAMMETT AND EDISON CONSULTANTS: SAN FRANCISCO, CALIFORNIA  
SATELLITES: ATS-1 EXPERIMENT PERIOD: NOV 69 - MAY 71  
OBJECT OF EXPERIMENT: TO DEMONSTRATE THE PRACTICALITY OF SATELLITES FOR DOMESTIC TELEVISION RELAYING AND TO GAIN USEFUL EXPERIENCE FOR PLANNING FUTURE OPERATIONAL SATELLITE SYSTEMS.  
ABSTRACT: THIS PAPER DESCRIBES A TEST PERFORMED BETWEEN NEW YORK AND LOS ANGELES TO COMPARE CONVENTIONAL TV & RADIO LINKS (TELEPHONE LINES) WITH AN ATS SATELLITE LINK.  
SUBJECT: BROADCASTING  
KEYWORDS: ATS-1; ATS-3; TRANSCONTINENTAL TELEVISION

UNIVERSITY OF DAYTON ACCESS NUMBER: 159

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DATE OF DOCUMENT/TYPE: MAR 71 / TECHNICAL REPORT

TITLE OF DOCUMENT: TRANSCONTINENTAL INTERCONNECTION EXPERIMENT TECHNICAL ANALYSIS

AUTHOR: CORPORATION FOR PUBLIC BROADCASTING

SPONSORING AGENCY: CORPORATION FOR PUBLIC BROADCASTING

SATELLITE: ATSS 475-3

SUBJECT OF EXPERIMENT: TO EVALUATE AND OPTIMIZE THE PERFORMANCE OF A TRANSCONTINENTAL SATELLITE LINK FOR VIDEO INTERCONNECTION

ABSTRACT: THIS PAPER IS AN ENGINEERING REPORT WHICH CITES EVIDENCE DEMONSTRATING THE HIGH QUALITY AND RELIABLE CAPABILITY OF AIR TV LINKS FOR DOMESTIC BROADCASTING.

SUBJECT: BROADCASTING

KEYWORDS: AIR-TO-AIR TELEVISION; TRANSCONTINENTAL INTERCONNECTION

UNIVERSITY OF DAVENPORT ACCESS NUMBER: 159

DATE OF DOCUMENT/TITLE: FEB 72 / PROPOSAL

TITLE OF DOCUMENT: ATS-1 COMPUTER COMMUNICATIONS EXPERIMENT

AUTHOR: KELLEY, S M

SPONSORING AGENCY: SPACECRAFT DATA SYSTEMS BRANCH, AMES RESEARCH CENTER, MOFFETT FIELD, CALIFORNIA

SATELLITE: ATS COMMUNICATIONS: VHF EXPERIMENT PERIOD: JAN 72 - DEC 73

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE FEASIBILITY OF UTILIZING SATELLITE COMMUNICATION LINKS TO PROVIDE COMPUTER AND TERMINAL-COMPUTER COMMUNICATIONS BETWEEN REMOTELY LOCATED SITES

ABSTRACT: COMPUTING FACILITIES AT THE UNIVERSITY OF HAWAII (UH) AND THE UNIVERSITY OF ALASKA (UA) WILL BE CONNECTED TO THE ADVANCED RESEARCH PROJECTS AGENCY (ARPA) COMPUTER NET VIA AN ATS-1 VHF LINK TO THE NASA-AMES RESEARCH CENTER (ARC). THIS EXPERIMENT PROVIDES DETAILED INFORMATION CONCERNING THE CHARACTERISTICS OF THE SATELLITE LINK AND THE PERFORMANCE OF A UNIQUE COMMUNICATION SYSTEM UNDER ACTUAL OPERATING CONDITIONS. THE EXPERIMENT HAS THE POTENTIAL OF PROVIDING, UH AND UA ACCESS TO THE ILLIAC IV AND OTHER RESOURCES CONNECTED THE ARPA COMPUTER NETWORK.

SUBJECT: DATA TRANSMISSION

KEYWORDS: COMPUTERS; UNIVERSITY OF HAWAII; ATS-1; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 150

DATE OF DOCUMENT/TYPE: JUN 1972 / FEASIBILITY STUDY

TITLE OF DOCUMENT: SATELLITE COMMUNICATIONS FOR ALASKA

SPONSORING AGENCY: INTERSPACE COMMUNICATIONS, INC

ABSTRACT: A MODEL SYSTEM HAS BEEN DEFINED WHICH WILL PROVIDE A VIDEO, TELEPHONE, AND DATA NETWORK BETWEEN 263 COMMUNITIES IN ALASKA. THE STUDY ALSO DEMONSTRATED THAT THE ESTIMATED TRAFFIC REQUIREMENTS BETWEEN THESE COMMUNITIES COULD BE SATISFIED BY TWO SATELLITE TRANSPONDERS. THE STUDY COULD SERVE AS A BASIS FOR FURTHER REFINEMENT IN ESTABLISHING A SATELLITE SYSTEM.

SUBJECT: HISTORICAL INFORMATION

KEYWORDS: ALASKA; SATELLITE COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 161

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DATE OF DOCUMENT/TYPER: AUG 1973 / PROGRESS REPORT

TITLE OF DOCUMENT: EVALUATION OF MEDICAL COMMUNICATIONS BY ATS-1 SATELLITE IN ALASKA

AUTHOR: PARKER, E S

SPONSORING AGENCY: STANFORD UNIVERSITY: STANFORD, CALIFORNIA

SATELLITE: ATS-1

EXPERIMENT PERIOD: MAY-JUL 1972

ABSTRACT: THIS PROGRESS REPORT DESCRIBES THE ACTIONS TAKING PLACE IN MEDICAL USES OF THE ATS-1 SATELLITE. THE REPORT INCLUDES SEVERAL QUESTIONNAIRE FORMS GIVEN IN THE APPENDIXES: THEY ARE, DOCTOR-HEALTH CARE CONSULTATION FORM, DOCTOR-DOCTOR CONSULTATION FORM, AND ANCHORAGE EVALUATION OF DOCTOR CONSULTATION FORM. NO SURVEY RESULTS ARE GIVEN IN THIS REPORT. ALSO INCLUDED IS A SYSTEM COSTS FOR OPERATIONAL SATELLITES NOW IN ORBIT.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ALASKA: ATS-1: MEDICAL/HEALTH SATELLITE COMMUNICATIONS: APPLICATION TECHNOLOGY SATELLITE  
UNIVERSITY OF DAYTON REPORT NUMBER: 152

DATE OF DOCUMENT/TYPES: JUL 1973 / CORRESPONDENCE  
 TITLE OF DOCUMENT: CORRESPONDENCE IN REGARD TO FILM ENTITLED SATELLITE HOUSE CALL  
 AUTHOR: PARKER, E OR ROSENBERG, J D  
 SPONSORING AGENCY: STANFORD UNIVERSITY STANFORD, CALIFORNIA  
 SATELLITE: ATS-1  
 ABSTRACT: LETTER OF TRANSMITTAL OF A FILM ABOUT HOW THE ATS-1 SATELLITE IS BEING USED FOR MEDICAL COMMUNICATIONS IN ALASKA. THE TITLE OF THE FILM IS SATELLITE HOUSE CALL.  
 SUBJECT: MEDICAL/HEALTH APPLICATIONS  
 KEYWORDS: ATS-1; ALASKA; MEDICAL; BIOMEDICAL; APPLICATION TECHNOLOGY SATELLITE; STANFORD UNIVERSITY; LISTEN; ILL

UNIVERSITY OF DAYTON ACCESS NUMBER: 153

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DATE OF DOCUMENT/TYPE: MAY 71 / PROPOSAL

TITLE OF DOCUMENT: DEPARTMENT OF HEALTH, EDUCATION AND WELFARE APPLICATION TECHNOLOGY SATELLITE VERY HIGH FREQUENCY EXPERIMENT PLAN

AUTHOR: MCCANN

SPONSORING AGENCY: DEPARTMENT OF HEALTH, EDUCATION AND WELFARE WASHINGTON, DC

SATELLITE: ATS-1 EXPERIMENT PERIOD: AUG 71 - APR 72

OBJECT OF EXPERIMENT: THIS PROJECT IS DESIGNED TO PROVIDE ADDITIONAL KNOWLEDGE NECESSARY TO DESIGN COMMUNICATIONS AND TRANSMISSION SYSTEMS REQUIRED TO DELIVER IMPROVED MEDICAL CARE AND EDUCATIONAL PROGRAMS TO REMOTE AREAS.

ABSTRACT: THE PROPOSAL DESCRIBES REQUIREMENTS FOR EQUIPMENT, TIME, AND DATA. ALSO DESCRIBED ARE EXPERIMENTS TO BE CONDUCTED. INCLUDED IN THE APPENDIX IS A LARGE QUANTITY OF BACKGROUND INFORMATION RELATED TO LISTER MYERS'S PARTICIPATION IN THE ALASKA EXPERIMENT.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS HISTORICAL INFORMATION

KEYWORDS: ALASKA; ATS-1; LISTER MYERS; BIOMEDICAL; COMMUNICATIONS; EDUCATION; APPLICATION TECHNOLOGY SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 164

DATE OF DOCUMENT/TYPE: AUG 1972

/ TECHNICAL REPORT

TITLE OF DOCUMENT: PRELIMINARY REPORT: EXPERIMENTAL SATELLITE SYSTEM FOR ALASKA

SPONSORING AGENCY: DED

SATELLITE: ATS-11 ATS-7

OBJECT OF EXPERIMENT: TO PROVIDE SELECTION CRITERIA FOR DETERMINING THE TECHNICAL, COST AND SCHEDULE PARAMETERS ASSOCIATED WITH AN EXPERIMENTAL SATELLITE SYSTEM FOR ALASKA

ABSTRACT: THIS REPORT DISCUSSES VARIOUS PARAMETERS ASSOCIATED WITH CHOOSING A SATELLITE SYSTEM FOR ALASKA. A COMPARISON OF THE SATELLITES NOW IN ORBIT THAT COULD BE USED IN AN ALASKA SYSTEM IS PRESENTED. SOME PLAINS AND TRADEOFFS ARE DISCUSSED FOR THE VARIOUS SATELLITES. THE PRINCIPLE FEATURES AND PROPERTIES OF EACH POTENTIALLY USEFUL SATELLITE ARE GIVEN. CONCLUSIONS FOR EACH SYSTEM ARE SUMMARIZED POINTING OUT PROBLEM AREAS WHICH MAY AFFECT SYSTEM IMPLEMENTATION.

SUBJECT: SATELLITE CHARACTERISTICS

KEYWORDS: SATELLITE; ALASKA; COMMUNICATIONS; BROADCASTING; VIDEO TRANSMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 165

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DATE OF DOCUMENT/TYPE: SEP 1973 / PROPOSAL

TITLE OF DOCUMENT: BRIEFING ON STUDY OF SATELLITE COMMUNICATIONS FOR ALASKA

AUTHOR: SHAPELY, W. A.

SPONSORING AGENCY: NASA

SATELLITES: ATS-1; ATS-3

ABSTRACT: OUTLINE OF ALASKA SATELLITE COMMUNICATIONS REPORT. FACTS ARE GIVEN FOR ATS-1 AND 3 AND SEVERAL OTHER SATELLITES. ADVANTAGES AND DISADVANTAGES OF SOME FUTURE SATELLITES (ATS-6, INTJSAF III) ARE LISTED. SOME PRELIMINARY CONCLUSIONS ARE GIVEN.

SUBJECT: SATELLITE CHARACTERISTICS

KEYWORDS: ATS-1; ATS-3; SATELLITE COMMUNICATIONS; TELECOMMUNICATIONS; ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 165

DATE OF DOCUMENT/TYPE: NOV 1972 / BIBLIOGRAPHY

TITLE OF DOCUMENT: ATS ALASKA TELE-MEDICINE EXPERIMENT

SPONSORING AGENCY: UNIVERSITY OF ALASKA

SATELLITE: ATS-1

EXPERIMENT PERIOD: 1971-72

OBJECT OF EXPERIMENT: TO DEMONSTRATE AND EVALUATE THE USE OF COMMUNICATIONS SATELLITE TECHNOLOGY TO PROVIDE COMMUNICATIONS TO ISOLATED COMMUNITIES USING INEXPENSIVE GROUND EQUIPMENT.

ABSTRACT: THE REPORT GIVES A BRIEF DESCRIPTION OF ONE OF THE HEALTH CARE EXPERIMENTS. SOME DATA ON USE OF THE SYSTEM TO TALK TO DOCTORS IS GIVEN. A SHORT PARAGRAPH IS INCLUDED ON ATS-F.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; COMMUNICATIONS; MEDICAL; DOCTOR CALL; HEALTH; MEDICAL; ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 167

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DATE OF DOCUMENT/TYPE: JUL 1967 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR DEMONSTRATION OF INSTRUCTION VIA SATELLITE

AUTHOR: LAMSON, R G; MEENEVEER, C A

SPONSORING AGENCY: UNIVERSITY OF WISCONSIN; SPACE AND SCIENCE ENGINEERING CENTER; MADISON, WISCONSIN

SATELLITES: ATS-1; ATS-3

OBJECT OF EXPERIMENT: TO TEST FOUR HYPOTHESES IN GLOBAL TEACHING VIA SATELLITE, TO EVALUATE THE RESULTS, AND TO CONSTRUCT MODULES FOR INSTRUCTION THAT CAN BE USED IN LATER OPERATING SYSTEMS OF INSTRUCTION VIA SATELLITE.

ABSTRACT:

THIS PROPOSAL REQUESTS THE USE OF ATS-1 AND 3 FOR ONE YEAR TO TEST THE FOLLOWING MODULES.  
MODULE 1 - A MEDICAL MODULE TO TEST STABLE CENTER-TO-CENTER COMMUNICATION WITHOUT INTERCULTURAL OR LINGUISTIC BARRIERS UTILIZING CONTROLLED RESPONSE AND RIPPLE EFFECT.  
MODULE 2 - A MODULE UTILIZING STUDENTS ENROLLED IN COURSES TAUGHT BY UNIVERSITY EXTENSION THROUGH THE UNITED STATES ARMED FORCES INSTITUTE (USAFI), TESTING A DISPERSED AND MOBILE POPULATION WITH OPEN RESPONSE AND FEEDBACK FROM ALL OPERATIONAL LEVELS, WITHOUT INTERCULTURAL OR LINGUISTIC BARRIERS.  
MODULE 3 - A MODULE FOR TRAINING OF REAR CORPS WORKERS, TESTING COMMUNICATIONS WITH DISPERSED AND MOBILE PARTICIPANTS, IN INTERCULTURAL SETTINGS, WITHOUT LINGUISTIC BARRIERS, UTILIZING CONTROLLED RESPONSE AND RIPPLE EFFECT.  
MODULE 4 - A MODULE FOR THE TRAINING OF LEADERS IN COOPERATIVES, TESTING COMMUNICATION WITH DISPERSED PARTICIPANTS HAVING INTERCULTURAL AND LINGUISTIC BARRIERS, USING CONTROLLED RESPONSE AND RIPPLE EFFECT. THIS WILL BE CONDUCTED WITH THE COOPERATION OF THE WISCONSIN-BASED INTERNATIONAL COOPERATIVE TRAINING CENTER INSTRUCTION (ITTC).

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: ATS-1; ATS-3; UNIVERSITY OF WISCONSIN; GLOBAL COMMUNICATIONS; COMMUNICATIONS; SATELLITE; EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 179

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UNIVERSITY OF DAYTON  
ACCESS NUMBER: 179

DATE OF DOCUMENT/TYPE: JUL 1966 / JOURNAL ARTICLE

TITLE OF DOCUMENT: VHF AIRCRAFT ANTENNAS FOR COMMUNICATIONS VIA SYNCHRONOUS SATELLITE

AUTHOR: ALMUTT, M W; KING, C W

SPONSORING AGENCY: THE POSTING COMPANY; SEATTLE, WASHINGTON

ABSTRACT: IN THIS PAPER SEVERAL SPECIAL AIRCRAFT ANTENNAS DEVELOPED FOR USE WITH SYNCHRONOUS SATELLITES ARE DESCRIBED, ALSO CONSIDERED ARE REQUIREMENTS FOR OPERATIONAL AIRCRAFT VHF SATELLITE COMMUNICATIONS ANTENNAS AND SEVERAL POSSIBLE ANTENNA CONFIGURATIONS.

SUBJECT: AIRCRAFT COMMUNICATIONS

KEYWORDS: ANTENNA; COMMUNICATIONS; AIRCRAFT; GEOSYNCHRONOUS SATELLITE; VHF; RADIATION

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS; AES-2; 4; 763-716

UNIVERSITY OF DAYTON ACCESS NUMBER: 173

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DATE OF DOCUMENT/TYPE: FEB 1967

/ PROPOSAL

TITLE OF DOCUMENT: TEST FOR COMPARISON OF PREPROCESSED AND UNPROCESSED VOICE MODULATION THROUGH THE ATS-1 SATELLITE.

AUTHOR: STEELE, H D

SPONSORING AGENCY: AERONAUTICAL RADIO, INC: 2951 FIVE ROAD: ANNAPOLIS, MARYLAND

SATELLITE: ATS-1

EXPERIMENT PERIOD: 1966-1967

ABSTRACT:

THIS FOLDER CONTAINS TEST PLANS FOR FOUR EXPERIMENTS TO BE CONDUCTED BY AERONAUTICAL RADIO, INC. AND SEVERAL COMMERCIAL AIRLINES. THE OBJECTIVES OF THE VARIOUS TESTS WERE (1) TO ACCUMULATE EMPIRICAL AND QUANTITATIVE DATA AND EVALUATE THE EFFECTIVENESS OF THE VHF SATELLITE-RELAY CHANNEL FOR AERONAUTICAL TWO-WAY COMMUNICATION (2) TO PERFORM A PROPAGATION DISTORTION ANALYSIS (3) TO DETERMINE THE EFFECTS OF PREPROCESSING AUDIO SIGNALS PRIOR TO MODULATING AN FM TRANSMITTER IN THE SATELLITE VHF SYSTEM. (4) TO DETERMINE SIGNAL BEHAVIOR OVER A LONG FLIGHT IN THE SOUTHERN HEMISPHERE.

THE PROPOSED TESTS ARE DESCRIBED IN DETAIL. NO RESULTS ARE GIVEN SINCE THESE ARE TEST PLANS.

SUBJECT: AIRCRAFT COMMUNICATIONS

KEYWORDS: ATS-1; AIRCRAFT COMMUNICATIONS; AIR-GROUND COMMUNICATIONS; SATELLITE; VOICE MODULATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 174

DATE OF DOCUMENT/TYPE: AUG 1966 / PROPOSAL

TITLE OF DOCUMENT: ATS-9 VHF COMMUNICATION EXPERIMENT TEST PLAN FOR SATELLITE COMMUNICATION EQUIPMENT

AUTHOR: KURTZ, C G

SPONSORING AGENCY: US DEPT OF COMMERCE; MARITIME ADMINISTRATION; WASHINGTON, DC

SATELLITE: ATS-1

EXPERIMENT PERIOD: 1967

OBJECT OF EXPERIMENT: TO INVESTIGATE PROPAGATIONAL EFFECTS OF VHF, TO DETERMINE FEASIBILITY OF ANTENNA DESIGN, TO EVALUATE GROUND-SHIP VOICE TRANSMISSIONS USING ATS-9 RELAY, TO DEMONSTRATE THE FEASIBILITY OF PROVIDING TIME/FREQUENCY SYNCHRONIZATION TO SHIPS

ABSTRACT: THIS PROPOSAL CONTAINS A NUMBER OF INDIVIDUAL TEST PLANS FOR BOTH GROUND STATION USAGE AND SHIP USAGE. IN EACH CASE VOICE, DIGITAL DATA, TIME/FREQUENCY, INTERFERENCE AND RANGING TESTS ARE PROPOSED. SOME VERY GENERAL INFORMATION ON EQUIPMENT AND DATA REQUIRED IS INCLUDED.

SUBJECTS: DATA TRANSMISSION MARITIME TRAFFIC CONTROL VOICE COMMUNICATIONS

KEYWORDS: ATS-9; MARITIME COMMUNICATION; RANGING; TIME/FREQUENCY SYNCHRONIZATION; DATA TRANSMISSION; SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 175

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DATE OF DOCUMENT/TYPE: MAR 1967

/ PROGRESS REPORT

TITLE OF DOCUMENT:

MONTHLY REPORT OF AIRINC/AIRLINE INDUSTRY PARTICIPATION IN NASA ATS-1 SATELLITE VHF COMMUNICATIONS EXPERIMENT

SPONSORING AGENCY:

AERONAUTICAL RADIO, INC: 2551 RIVA ROAD: ANNAPOLIS, MARYLAND

SATELLITE: ATS-1

EXPERIMENT PERIOD: FEB 5 THROUGH MAR 5, 1967

ABSTRACT:

THE TESTS CONDUCTED BY THE AIRINC/AIRLINE INDUSTRY PARTICIPANTS DURING THE PERIOD FEBRUARY 5 THROUGH MARCH 5, 1967 COMPRISED THE FOLLOWING:

FEBRUARY 7, 1967: AIRCRAFT INSTALLATION, SYSTEMS CHECK AND FLIGHT TESTS ABOARD AN AVIANCA BOEING 727 AIRCRAFT OPERATED BY PAN AMERICAN WORLD AIRWAYS, KNOWN AS PAA/AVIANCA 337, ON THE GROUND AND IN THE VICINITY OF MIAMI INTERNATIONAL AIRPORT, FLORIDA.

FEBRUARY 8, 1967: THE ABOVE AIRCRAFT PAA/AVIANCA 337 WAS FLOWN FROM MIAMI TO FREEPORT, BAHAMAS. ALSO ON THIS DATE EASTERN AIRLINES BOEING 727, EAL 7-151, EQUIPPED WITH A COLLINS SATCOM RADIO IN INSTALLATION WAS TESTED IN THE VICINITY OF FT. WORTH, TEXAS. TWO-WAY COMMUNICATIONS WERE EXCHANGED BETWEEN GROUND TEST CONTROL, USING THE NASA POSMAN GROUND TERMINAL AND THE TWO AIRCRAFT.

FEBRUARY 9, 1967, FLIGHT TEST SCHEDULE: TWO-WAY COMMUNICATION TESTS WERE CONDUCTED WITH PAA/AVIANCA 337 OPERATING IN THE VICINITY OF MIAMI AND EAL 7-151 IN THE VICINITY OF FT. WORTH, TEXAS.

FEBRUARY 14, 1967, TEST NO. FOT-7, UNITED AIR LINES ENGINEERING LABORATORY, SAN FRANCISCO: ANTENNA PATTERN TEST ON THE ABOVE ANTENNA WHILE RECEIVING POSMAN GROUND STATION THROUGH THE SATELLITE.

FEBRUARY 21, 1967, PAN AMERICAN WORLD AIRWAYS BOEING 747 AIRCRAFT ANTENNA PATTERN TEST AND TWO-WAY COMMUNICATIONS USING AN AIRCRAFT SATCOM EQUIPMENT COMPLEMENT ON THE ANTENNA RANGE, ON THE ROOF OF A FEA HANGAR IN MIAMI, FLORIDA.

FEBRUARY 21, 1967: PREFLIGHT CHECK-OUT FROM SYDNEY, AUSTRALIA OF AIRBORNE SYSTEM BY QANTAS EMPIRE AIRWAYS, LTD., OF A BOEING 707 JET AIRCRAFT AT THE SYDNEY, AUSTRALIA AIRPORT. AIRCRAFT EQUIPPED WITH BOEING WING-ROOT SLOT SATCOM ANTENNA (VERTICAL POLARIZATION), AND BENDIX SATCOM EQUIPMENT COMPLEMENT.

FEBRUARY 22-23, 1967: IN-FLIGHT TWO-WAY COMMUNICATION TESTS OF THE ABOVE EQUIPMENT ON QANTAS FLIGHT 5-3 IN SCHEDULED OPERATIONS FROM SYDNEY, AUSTRALIA TO BERNICA, WITH STOPS AT NAROI, PAPETE, ACOPILOO, MICO CITY AND NASCAU. DURING THIS TEST COMMUNICATION WAS ALSO ESTABLISHED WITH THE PAA TEST INSTALLATION AT MIAMI AIRPORT.

FEBRUARY 24, 1967: PAN AMERICAN WORLD AIRWAYS TEST OF BENDIX SATCOM ANTENNA ON ROOF ANTENNA RANGE AT MIAMI, FLORIDA.

THE PROGRESS REPORT GIVES DETAILS OF SEVERAL OF THE TESTS INDICATED ABOVE.

SUBJECT:

AIRCRAFT COMMUNICATIONS

KEYWORDS:

ATS-1: AIRCRAFT COMMUNICATIONS: ANTENNA: SATELLITE: COMMUNICATIONS: VHF

UNIVERSITY OF DAYTON ACCESS NUMBER: 176

DATE OF DOCUMENT/TYPES: MAY 5, 1967 / TECHNICAL REPORT

TITLE OF DOCUMENT: OPERATIONAL LESSONS OF THE LINE ISLAND EXPERIMENTS

AUTHOR: REX, D F

SPONSORING AGENCY: NATIONAL CENTER FOR ATMOSPHERIC RESEARCH: BOULDER, COLORADO

SATELLITE: ATS-1

EXPERIMENT PERIOD: MAR-APR 1967

OBJECT OF EXPERIMENT: TO COLLECT COMPREHENSIVE METEOROLOGICAL DATA IN THE TROPICS

ABSTRACT: A MEETING WAS HELD IN MAY OF 1967 FOR PARTICIPANTS TO TALK ABOUT THE PROBLEMS OF ORGANIZATION AND IMPLEMENTATION OF THE EXPERIMENT. THIS REPORT RECORDS THE INTROSPECTIVE REVIEW OF THE LINE ISLAND EXPERIMENT BY PARTICIPANTS. THE DISCUSSION IS NOT ABOUT THE RESULTS BUT ABOUT THE PROBLEMS ENCOUNTERED DURING THE EXPERIMENT.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; LINE ISLAND EXPERIMENT; METEOROLOGY; SATELLITE; SPIN-SCAN CAMERA; CLOUD COVER; TROPICAL METEOROLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 177

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DATE OF DOCUMENT/TYPE: APR 1968

/ TECHNICAL REPORT

TITLE OF DOCUMENT: A PRELIMINARY REPORT ON THE MARITIME MOBILE SATELLITE COMMUNICATIONS TESTS ABOARD THE S.S. SANTA LUCIA

AUTHOR: MUELLER, E J; KURTZ, C G

SPONSORING AGENCY: WESTINGHOUSE DEFENSE AND SPACE CENTER; BALTIMORE, MARYLAND

SATELLITE: ATS-1; ATS-3

EXPERIMENT PERIOD: MAR 1968

OBJECT OF EXPERIMENT: TO EXPLORE THE FEASIBILITY OF USING SATELLITES FOR LONG DISTANCE SHIP COMMUNICATION IN THE MERCHANT MARINE SERVICE.

ABSTRACT:

DURING THE LATTER PART OF 1967, THE WESTINGHOUSE ELECTRIC CORPORATION ASSEMBLED THE EQUIPMENT TO SUPPORT THE TEST PROGRAM. WHEN THE TEST PLANS AND EQUIPMENT WERE READY, THE GRACE LINES OFFERED THE USE OF THE S.S. SANTA LUCIA AS A TEST VESSEL. IN JANUARY 1968, THE EQUIPMENT WAS INSTALLED JANUARY 31, 1968. THE CRUISE COURSE WAS SOUTHWARD THROUGH THE PANAMA CANAL TO VALPARAISO, CHILE, WITH A RETURN OUT ESSENTIALLY THE SAME ROUTE. DURING THE 36-DAY CRUISE, APPROXIMATELY 62 TEST PERIODS WERE CONDUCTED THROUGH THE NASA ATS-1 AND ATS-3 SATELLITES. EACH TEST PERIOD LENGTH RANGED FROM 1 TO 2 HOURS. TESTING TERMINATED MARCH 7, 1968, WITH THE SHIP IN PORT AT CHARLESTON, S.C.

THIS REPORT DESCRIBES THE OBJECTIVES OF THE MARAC TEST PROGRAM, THE SYSTEM EMPLOYED FOR THE TESTS, AND A FIRST CUT AT THE ANALYSIS OF THE DATA. THE CONCLUDING SECTION DISCUSSES THE STATUS OF MARITIME MOBILE SATELLITE COMMUNICATIONS AND FURNISHES SOME OBSERVATIONS UPON WHICH THE DIRECTION OF FURTHER INVESTIGATION MIGHT BE BASED.

CONCLUSIONS:

THE FEASIBILITY OF SIMPLEX VOICE COMMUNICATIONS REPORTED ON OTHER PROGRAMS HAS BEEN REAFFIRMED WITH VERY GOOD PERFORMANCE OBSERVED USING AN EFFECTIVE RADIATED POWER OF 1.5 KILOWATTS ABOARD THE SHIP. A MANUALLY ORIENTED HIGH-GAIN ANTENNA SYSTEM WAS SUCCESSFULLY EMPLOYED AT SEA, WITH DIFFICULTY ARISING ONLY WHEN CHANGING COURSE IN HARBORS AND RIVERS. AN OMNIDIRECTIONAL ANTENNA, EMPLOYED ON FIVE OCCASIONS, PROVIDED GOOD VOICE RECEPTION AT ALL TIMES. FADING WAS OBSERVED AT TIMES, BUT WAS NOT AS SEVERE AS ANTICIPATED.

THE ABILITY TO LOCK UP AND SLAVE A TIME DISPLAY ABOARD SHIP FROM TIME SIGNALS FROM A GROUND STATION THROUGH THE VHF SATELLITE TRANSPONDER WAS DEMONSTRATED.

SUBJECT: MARITIME TRAFFIC CONTROL

KEYWORDS: ATS-3; MARAC; MARITIME; COMMUNICATIONS; ANTENNA; VOICE COMMUNICATION; SATELLITE; RANGING

UNIVERSITY OF DAYTON ACCESS NUMBER: 178

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DATE OF DOCUMENT/TYPER: SEP 1974 / TECHNICAL REPORT

TITLE OF DOCUMENT: STATUS REPORT ON UH/ALOHA PARTICIPATION IN THE ATS-1 COMPUTER COMMUNICATIONS EXPERIMENT

AUTHOR: ALV. C. W.

SPONSORING AGENCY: UNIVERSITY OF HAWAII: HONOLULU, HAWAII

SATELLITE: ATS-1

EXPERIMENT PERIOD: JAN 72 - JAN 74

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE FEASIBILITY OF UTILIZING SATELLITE COMMUNICATION LINKS TO PROVIDE COMPUTER-TO-COMPUTER COMMUNICATIONS BETWEEN REMOTELY LOCATED SITES.

ABSTRACT: THIS REPORT CONTAINS SOME OF THE RESULTS OBTAINED IN THE ERROR RATE MEASUREMENT AND PURSU COMMUNICATION PORTIONS OF THE EXPERIMENT. PROBLEMS ENCOUNTERED IN TRANSMISSION ARE DISCUSSED. A DETAILED DESCRIPTION OF THE ENTIRE EXPERIMENT IS CONTAINED IN THE APPENDIX

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-1; SATELLITE; COMPUTERS; ALOHA; DATA TRANSMISSION; VHF

TECHNICAL REPORT NUMBER: 874-A

UNIVERSITY OF DAYTON ACCESS NUMBER: 179

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DATE OF DOCUMENT/TYPER: SEP 67 / REQUEST FOR USE OF ATS SATELLITE  
TITLE OF DOCUMENT: A REQUEST TO NASA FOR USE OF ATS-C IN SUPPORT OF THE BARBADOS METEOROLOGICAL AND OCEANOGRAPHIC EXPERIMENT  
AUTHOR: GARSTANG, M.  
SPONSORING AGENCY: FLORIDA STATE UNIVERSITY, TALLAHASSEE, FLORIDA  
SATELLITE: ATS-3 EXPERIMENT PERIOD: JUN 66-SEP 68  
OBJECT OF EXPERIMENT: TO STUDY THE TOTAL FLUID (OCEAN AND ATMOSPHERE) WITHIN A LIMITED AREA  
ABSTRACT: PHOTOGRAPHIC COVERAGE BY ATS-3 SATELLITE IS REQUESTED FOR OCEAN AND ATMOSPHERE IN THE BARBADOS ISLAND REGION OF THE WEST INDIES. AN OCEAN-ATMOSPHERE INTERACTION PROGRAM IS OUTLINED.  
SUBJECT: METEOROLOGY OCEANOGRAPHY  
KEYWORDS: ATS-3; METEOROLOGY; OCEANOGRAPHY; UNIVERSITY OF FLORIDA; BARBADOS

UNIVERSITY OF DAYTON ACCESS NUMBER: 191

DATE OF DOCUMENT/TYPER: MAY 67 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: NASA/ESSA ELFAC EXPERIMENT EVALUATION REPORT ATS-1  
 AUTHOR: HALL, L. J. BEFFY, L.  
 SPONSORING AGENCY: ALLIED RESEARCH ASSOCIATES, CONCORD, MASS.  
 SATELLITE: ATS-1 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: JAN 67-OCT 67

OBJECT OF EXPERIMENT: TO DETERMINE BY ACTUAL DEMONSTRATION, THE FEASIBILITY OF DISSEMINATING METEOROLOGICAL DATA AND SATELLITE CLOUD CAMERA PICTURES FROM A CENTRAL WEATHER STATION SOURCE TO WIDELY SCATTERED REMOTE WEATHER STATIONS OR RECEIVING UNITS.

ABSTRACT: WEATHER FACSIMILE CHARTS AND SATELLITE CLOUD COVER PICTURES ARE SENT PERIODICALLY, VIA LANDLINE, FROM THE NATIONAL METEOROLOGICAL CENTER, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION (ESSA) AT SUIT LAND, MARYLAND, TO THE NASA ATS GROUND STATION AT MOJAVE, CALIFORNIA. FROM THERE, THE CHARTS AND PICTURES ARE TRANSMITTED TO THE ATS-1 SATELLITE FOR RELAY VIA THE VHF TRANSPONDER IN THE SPACECRAFT TO ALL PARTICIPATING ANT STATIONS WITHIN THE AREA OF RECEPTION OF THE SATELLITE. SATELLITE CLOUD CAMERA PICTURES FROM THE ATS-1 ARE RETRANSMITTED THROUGH THE ATS-1 SPACECRAFT DIRECTLY FROM THE NASA ATS GROUND STATION AT MOJAVE.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; WEATHER; METEOROLOGY; WEFAX

UNIVERSITY OF DAYTON ACCESS NUMBER: 192

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DATE OF DOCUMENT/TYPE: AUG 1966 / PROPOSAL

TITLE OF DOCUMENT: TEST SCHEDULE OF EXPERIMENTAL PCM COMMUNICATION SYSTEM WITH APPLICATIONS TECHNOLOGY SATELLITE

AUTHOR: HIRAI, MASAOCHI

SPONSORING AGENCY: RADIO RESEARCH LABORATORIES, MINISTRY OF POSTS AND TELECOMMUNICATIONS, TOKYO, JAPAN

SATELLITE: ATS-1 EXPERIMENT PERIOD: 1967-1969

OBJECT OF EXPERIMENT: ACCUMULATE DATA NECESSARY FOR TECHNICAL DEVELOPMENT OF PCM MULTIPLEX COMMUNICATION SYSTEM.

ABSTRACT: THIS PROPOSAL IS CONCERNED WITH USING PCM MULTIPLEX COMMUNICATIONS IN CONJUNCTION WITH THE ATS-1 FOR TRANSMISSION OF ONE-WAY AND TWO-WAY VOICE, TELEGRAPH, DIGITAL DATA, FACSIMILE AND TELEVISION. THE TEST PROGRAM CONSISTS OF THREE CATEGORIES: (1) FUNDAMENTAL MEASUREMENTS; (2) TEST OF A TRUNK OPERATION MODE SYSTEM; (3) TESTS OF A MULTIPLE ACCESS MODE SYSTEM. A PROPOSED TIME SCHEDULE FOR THE VARIOUS PHASES OF THE EXPERIMENT IS ALSO INCLUDED.

SUBJECT: DATA TRANSMISSION VOICE COMMUNICATIONS

KEYWORDS: ATS-1; SATELLITE MULTIPLEX; COMMUNICATIONS; JAPAN

UNIVERSITY OF DAYTON ACCESS NUMBER: 194

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DATE OF DOCUMENT/TYPE: APR 1966 / PROPOSAL

TITLE OF DOCUMENT: ATS-3 SATELLITE EXPERIMENTS, PROVISIONAL PROPOSALS

AUTHOR: GLOSSOP, G.

SPONSORING AGENCY: CIVIL AVIATION DEPT., NATIONAL AIR TRAFFIC CONTROL SERVICES, LONDON, ENGLAND

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO MEASURE AND RECORD CARRIER LEVELS, SIGNAL PLUS NOISE AND NOISE LEVELS RESULTING FROM GROUND-SATELLITE-GROUND TRANSMISSIONS. TO INVESTIGATE THE EFFECTS OF FREQUENCY DEVIATION AND MODULATION FREQUENCY ON GROUNDSTALK INTERFERENCE. TO ASSESS EFFECTS OF EMPHASIS NETWORKS ON THE INDICATED COMMUNICATION LINK.

ABSTRACT: THE PROPOSAL GIVES THE OBJECTIVE OF EACH OF THE EXPERIMENTS AND A BRIEF DESCRIPTION OF THE PROCEDURE TO BE FOLLOWED IN EACH EXPERIMENT. ESTIMATES OF THE FREQUENCY AND DURATION OF THE TEST ARE GIVEN. ALSO, SYSTEM ORGANIZATION AND FACILITIES ARE OUTLINED.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-3; SATELLITE; FREQUENCY; VHF; ENGLAND; AIR TRAFFIC CONTROL

UNIVERSITY OF DAYTON ACCESS NUMBER: 195

DATE OF DOCUMENT/TITLE: DEC 1969 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR SATELLITE RANGING EXPERIMENTS USING ATS-1

AUTHOR: MCMENCOCK, I.

SPONSORING AGENCY: DEPT. OF CIVIL AVIATION, MELBOURNE, AUSTRALIA

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO DETERMINE WHAT ACCURACIES IN RANGING ARE POSSIBLE WITH VARYING DEGREES OF EQUIPMENT COMPLEXITY.

ABSTRACT: A PROPOSAL TO PERFORM CERTAIN EXPERIMENTS INVOLVING THE ATS-1. THE AUSTRALIAN DEPARTMENT OF CIVIL AVIATION IS REQUESTING USE OF ATS-1 FOR RANGING AND POSITION FIXING EXPERIMENTS. THERE IS AN INTEREST IN DEVELOPING A SATELLITE NAVIGATION AND AIRCRAFT SURVEILLANCE SYSTEM FOR AUSTRALIA. GROUND-BASED AND AIRCRAFT-BASED SYSTEMS ARE TO BE TRIED AND COMPARISONS OF RESULTS MADE.

SUBJECT: AIR TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-1; SATELLITE; AUSTRALIA; RANGING; POSITION FIXING

UNIVERSITY OF DAYTON ACCESS NUMBER: 196

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DATE OF DOCUMENT/TYPER: APR 1972 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR PACIFIC-MAINLAND EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE FOR ADVANCED REMOTE SENSING APPLICATIONS BY ERTS, AIRCRAFT, AND SKYLAB.

AUTHOR: JANZA, F.J.

SPONSORING AGENCY: CALIFORNIA STATE UNIVERSITY, SACRAMENTO, CALIFORNIA

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: ESTABLISH AN ATS-1 TWO-WAY COMMUNICATIONS SYSTEM BETWEEN CALIFORNIA STATE UNIVERSITY AND AVAILABLE PEACESAT STATIONS FOR THE DISSEMINATION, ANALYSIS AND APPLICATION OF DAILY ERTS AND SKYLAB DATA.

ABSTRACT: IT IS PROPOSED TO DEVELOP A TWO-WAY VOICE AND FACSIMILE COMMUNICATIONS NETWORK BETWEEN THE PACIFIC ISLANDS AND CALIFORNIA STATE UNIVERSITY AT SACRAMENTO. THE PURPOSE OF THIS SYSTEM IS TO DISSEMINATE, ANALYZE AND APPLY DAILY ERTS AND SKYLAB DATA. ANOTHER USE WOULD BE FOR EDUCATIONAL PURPOSES IN THE FIELD OF REMOTE SENSING. THE BENEFITS OF SUCH A SYSTEM ARE ENUMERATED.

SUBJECT: EDUCATIONAL APPLICATIONS METEOROLOGY

KEYWORDS: ATS-1; SATELLITE; PEACESAT; SKYLAB; COMMUNICATIONS; REMOTE SENSING

UNIVERSITY OF DAYTON ACCESS NUMBER: 197

UNIVERSITY OF DAYTON  
ACCESS NUMBER: 197

DATE OF DOCUMENT/TYPE: OCT 1972 / PROPOSAL

TITLE OF DOCUMENT: INLAND WATERWAYS SATELLITE COMMUNICATION EXPERIMENT TEST PLAN

AUTHOR: ANDERSON, R.E.

SPONSORING AGENCY: DEPT OF COMMERCE, MARITIME ADMINISTRATION, WASHINGTON, D.C.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO PROVIDE AN EVALUATION OF THE POTENTIAL OF SATELLITE USE TO THE INLAND WATERWAYS OPERATORS

ABSTRACT: THE PROPOSED EXPERIMENT USES ATS-3 TO PROVIDE COMMUNICATIONS BETWEEN AN INLAND WATERWAY TOWBOAT AND THE OFFICE OF THE OPERATOR. THE TEST PLAN WAS PROPOSED BY GENERAL ELECTRIC CO. AND WILL BE PERFORMED BY GE PERSONNEL. A BRIEF DESCRIPTION OF THE TEST IS GIVEN ALONG WITH A PROPOSED TIME SCHEDULE. THE TEST PLAN CALLS FOR EVALUATION OF TECHNICAL PROBLEMS, FACSIMILE TRANSMISSION, AND RANGING.

SUBJECT: NAVIGATION

KEYWORDS: ATS-3; SATELLITE; RANGING; INLAND WATERWAYS; MARAD; SHIPPING; FACSIMILE; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 198

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DATE OF DOCUMENT/TYPE: SEP 1975 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL FOR USE OF THE ATS-3 VHF TRANSPONDER

AUTHOR: HANSON, D.W.

SPONSORING AGENCY: DEPT OF COMMERCE, NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO USE THE VHF TRANSPONDER ON ATS-3 TO SYNCHRONIZE CLOCKS ON THE GROUND.

ABSTRACT: THIS DOCUMENT IS A PROPOSAL BY THE NATIONAL BUREAU OF STANDARDS TO EXPLORE ONE-WAY TRANSMISSIONS FOR DISSEMINATING TIME VIA SATELLITE. THIS METHOD HAS ADVANTAGES OVER TWO-WAY TRANSMISSIONS. NAMELY, NUMEROUS USERS CAN BE SERVED SIMULTANEOUSLY AND THE EQUIPMENT IS MUCH LESS EXPENSIVE THAN THAT USED FOR TWO-WAY TRANSMISSION. A BRIEF DESCRIPTION OF THE EXPERIMENT IS GIVEN. ALSO IS A LIST OF SATELLITE INFORMATION REQUIRED FOR COMPLETION OF THE EXPERIMENT.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-3; SATELLITE; TIME DISSEMINATION; NATIONAL BUREAU OF STANDARDS; VHF

UNIVERSITY OF DAYTON ACCESS NUMBER: 199

DATE OF DOCUMENT/TYPE: JUN 1972 / PROPOSAL

TITLE OF DOCUMENT: PROPOSAL TO EXTEND THE NBS TIME AND FREQUENCY EXPERIMENT USING THE ATS-3 VHF TRANSPONDER

AUTHOR: HANSON, D.W.

SPONSORING AGENCY: DEPT OF COMMERCE, NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.

SATELLITE: ATS-3

EXPERIMENT PERIOD: AUG 1972 - AUG 1973

OBJECT OF EXPERIMENT: TO COMPLETE THE EVALUATION OF SPECIAL TECHNIQUES FOR EFFICIENT DISSEMINATION OF TIME AND FREQUENCY INFORMATION.

ABSTRACT: THIS PROPOSAL IS FOR AN EXTENSION OF ONE YEAR OF THE ON-GOING NBS EXPERIMENT. IN ADDITION TO THE REQUEST FOR EXTENSION THE PROPOSAL CONTAINS AN NBS TIME AND FREQUENCY BULLETIN SHOWING TIME DELAY CONTOURS AND A BROCHURE ON THE NBS SATELLITE EXPERIMENT. THE LATTER GIVES A BRIEF DESCRIPTION OF THE SATELLITE EXPERIMENT. RECEIVING EQUIPMENT AND ACCURACY ARE ALSO DISCUSSED.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-3; SATELLITE; TIME DISSEMINATION; FREQUENCY; NATIONAL BUREAU OF STANDARDS; TIME PROPAGATION DELAY

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ORIGINAL PAGE 1  
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DATE OF DOCUMENT/TYPE: AUG 1972 / PROPOSAL

TITLE OF DOCUMENT: RECOMMENDED L-BAND EXPERIMENTAL PROGRAM USING ATS-5

AUTHOR: LUNDQUIST, G.E.

SPONSORING AGENCY: DEPT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, WASHINGTON, D.C.

SATELLITE: ATS-5

EXPERIMENT PERIOD: 1972 - 73

OBJECT OF EXPERIMENT: TO OBTAIN MULTIPATH PROPAGATION DATA AT L-BAND AND TO MEASURE THE EFFECTS OF MULTIPATH ON DATA TRANSMISSION PERFORMANCE

ABSTRACT: DESCRIBED IN THIS DOCUMENT IS A PROPOSED TEST PLAN FOR OBTAINING A COMPREHENSIVE SET OF OVER-OCEAN MULTIPATH DATA FOR SMOOTH AND MODERATELY ROUGH SURFACE CONDITIONS. ALSO DESCRIBED IS A TEST TO OBTAIN REFLECTED SIGNAL DATA FROM OVERLAND MULTIPATH TRANSMISSIONS. ANOTHER EXPERIMENT TO BE PERFORMED IS CONCERNED WITH THE ONE-WAY TRANSFER OF DIGITAL INFORMATION FROM A GROUND STATION TO AN AIRCRAFT VIA ATS-5 USING L-BAND FREQUENCIES. A PROGRAM TIME SCHEDULE IS ALSO INCLUDED.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-5; SATELLITE; MULTIPATH TRANSMISSION; OCEANOGRAPHY; L-BAND; DATA TRANSFER

UNIVERSITY OF DAYTON ACCESS NUMBER: 281

DATE OF DOCUMENT/TYPE: JUL 1972 / CORRESPONDENCE

TITLE OF DOCUMENT: CORRESPONDENCE CONCERNING JOINT US/USSR BERING SEA EXPERIMENT

AUTHOR: NORDREPG. W.

SPONSORING AGENCY: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND, 20771

SATELLITE: ATS-1 EXPERIMENT PERIOD: FEB - MAR 1973

OBJECT OF EXPERIMENT: TO MAKE MEASUREMENTS FROM US AND USSR AIRCRAFT OF MICROWAVE RADIATION EMITTED BY THE SEA AND SEA ICE.

ABSTRACT: THE CORRESPONDENCE CONCERNS THE WAY ATS-1 WOULD BE USED FOR COMMUNICATION PURPOSES IN THE BERING SEA EXPERIMENT. ONE LETTER ALSO CONTAINS A LIST OF THE OBJECTIVES OF THE EXPERIMENT. ALSO INCLUDED IN THE CORRESPONDENCE IS APPROVAL TO USE ATS-1 FOR THE PROPOSED EXPERIMENT.

SUBJECT: AIRCRAFT COMMUNICATIONS METEOROLOGY VOICE COMMUNICATIONS

KEYWORDS: ATS-1; SATELLITE; COMMUNICATIONS; BERING SEA; MICROWAVES; RUSSIA

UNIVERSITY OF DAYTON ACCESS NUMBER: 202

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DATE OF DOCUMENT/TYPE: 30 OCT 72

/ PROPOSAL  
CORRESPONDENCE

TITLE OF DOCUMENT: ATS-1 SUPPORT FOR COUSTEAU SOUTHERN POLAR EXPEDITION

AUTHOR: MARSTEN, R. P.

SPONSORING AGENCY: COMMUNICATIONS PROGRAMS, NASA

SATELLITE: ATS-1, ATS-3 COMMUNICATIONS: HF, VHF

EXPERIMENT PERIOD: OCT 72 - DEC 72

OBJECT OF EXPERIMENT: TO RESEARCH THE ANTARCTIC PENINSULA

ABSTRACT:

JACQUES COUSTEAU HAS ORGANIZED AND EXECUTED AN OCEAN RESOURCE RESEARCH VOYAGE TO THE ANTARCTIC PENINSULA VIA THE RESEARCH SHIP CALYPSO. HE IS CONDUCTING SCIENTIFIC OBSERVATIONS OF OCEAN SURFACE CHLOROPHYLL, OIL FILMS, TEMPERATURE, TURBIDITY, SUNLIGHT, ETC. HE PROPOSES TO MAKE A FILM PROVIDING THE GENERAL PUBLIC WITH A VIEW OF THESE REMOTE AREAS AND OF THE SCIENTIFIC AND ENGINEERING ADVANCES UTILIZED IN OCEAN RESEARCH MONITORING. CAPTAIN COUSTEAU REQUESTS APPROVAL FOR USE OF ATS-3 FOR TRANSMISSION OF OBSERVED AND MEASURED DATA.

SUBJECT: DATA TRANSMISSION OCEANOGRAPHY

KEYWORDS: ATS-1; ATS-3; COUSTEAU; CALYPSO; ANTARCTIC; CHLOROPHYLL; TURBIDITY; OCEANOGRAPHY

UNIVERSITY OF DAYTON ACCESS NUMBER: 263

DATE OF DOCUMENT/TYPE: 8 JUL 70

/ PROPOSAL  
CORRESPONDENCE

TITLE OF DOCUMENT: PROPOSED SHIP/SHORE TESTS USING ATS-3

AUTHOR: WITHEPS, R.J.

SPONSORING AGENCY: TELECOMMUNICATIONS DEVELOPMENT DEPARTMENT, POST OFFICE (UNITED KINGDOM)

SATELLITE: ATS-3 COMMUNICATIONS: VHF, FM, AM, SSB EXPERIMENT PERIOD: 27 JUL 70

OBJECT OF EXPERIMENT: TO MAKE QUALITATIVE ASSESSMENTS OF TELEPHONE COMMUNICATIONS BETWEEN UK SHIPS AND SHORE STATIONS.

ABSTRACT: THE TELECOMMUNICATIONS HEADQUARTERS OF THE TELECOMMUNICATIONS DEVELOPMENT DEPT. OF THE POST OFFICE (UK) PROPOSES A THREE PHASE SERIES OF TESTS ON RADIO-TELEPHONE COMMUNICATIONS BETWEEN SHIPS AT SEA AND LAND-BASED STATIONS VIA ATS-3. THE SS ATLANTIC CAUSEWAY IS THE SHIP USED. TESTS INCLUDE TELEPHONE, FACSIMILE, AND DATA TRANSMISSION ALONG WITH DETERMINATION OF ATS-3 VHF TRANSPONDER DYNAMIC CHARACTERISTICS.

SUBJECT: DATA TRANSMISSION      NAVIGATION  
VOICE COMMUNICATIONS      RADIO TRAFFIC CONTROL

KEYWORDS: ATS-3; UNITED KINGDOM; SHIP TO SHORE; TELECOMMUNICATION; FACSIMILE; DATA TRANSMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 204

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DATE OF DOCUMENT/TYPER: JUL 72 / PROPOSAL

TITLE OF DOCUMENT: A PROPOSAL FOR AN EXPERIMENT IN EDUCATIONAL COMMUNICATIONS

AUTHOR: DEESNAPAN, L.F.

SPONSORING AGENCY: UNIVERSITY OF THE SOUTH PACIFIC, LAUCALA BAY, SUVA, FIJI

SATELLITE: ATS-1 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: AUG 73 - DEC 74

OBJECT OF EXPERIMENT: TO DETERMINE APPLICABILITY, EFFECTIVENESS, AND TIME REQUIREMENTS FOR TWO-WAY VOICE AND DATA COMMUNICATION SATELLITE LINK BETWEEN ISLANDS SERVED BY THE UNIVERSITY OF THE SOUTH PACIFIC.

ABSTRACT: THE UNIVERSITY OF THE SOUTH PACIFIC PROPOSES TO SET UP A NETWORK OF GROUND STATIONS CAPABLE OF TWO-WAY COMMUNICATION WITH ATS-1. LECTURES, SEMINARS, TUTORIALS, LIBRARY TRANSFERS, AND PROGRAM ENHANCEMENT ARE AMONG THE INTENDED USES OF THIS SATELLITE LINK.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS

KEYWORDS: RESEARCH: UNIVERSITY OF THE SOUTH PACIFIC; ATS-1; EDUCATION; COMMUNICATIONS; FIJI ISLANDS; COOK ISL  
AND

UNIVERSITY OF DAYTON ACCESS NUMBER: 235

DATE OF DOCUMENT/TYPE: 1972

/ TECHNICAL REPORT

TITLE OF DOCUMENT: PEACESAT- A REPORT ON THE PROGRESS OF AN EXPERIMENT IN INTERNATIONAL EDUCATIONAL COMMUNICATIONS

AUTHOR: CUTTING, B.K.; BERKOWITZ, D.A.

SPONSORING AGENCY: UNIVERSITY OF SOUTH PACIFIC, SUVA, FIJI

SATELLITE: ATS-1

EXPERIMENT PERIOD: FEB 72 - SEP 72

OBJECT OF EXPERIMENT: TO PROVIDE HIGH QUALITY COMMUNICATION BETWEEN SUVA CAMPUS - THE UNIVERSITY OF THE SOUTH PACIFIC AND REGIONAL CENTERS THROUGHOUT THE PACIFIC.

ABSTRACT: THIS IS A PROGRESS REPORT GIVING TECHNICAL, OPERATIONAL, AND PSYCHOLOGICAL EVALUATIONS OF THE PEACESAT NETWORK LINKING NEW ZEALAND, FIJI ISLANDS, HAWAII AND OTHER SOUTH PACIFIC ISLANDS.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS

KEYWORDS: FIJI ISLANDS; NEW ZEALAND; PEACESAT; ATS-1; EDUCATION; COMMUNICATIONS; UNIVERSITY OF THE SOUTH PACIFIC

UNIVERSITY OF DAYTON ACCESS NUMBER: 206

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DATE OF DOCUMENT/TYPER: JUL 69 / PROPOSAL

TITLE OF DOCUMENT: LETTER REQUESTING ATS TIME FOR MARITIME EXPERIMENT

INT-751 SHARLEY, W.M.

PERFORMING AGENCY: NAVCAT SYSTEM, INC., NEWPORT BEACH, CALIFORNIA

SATELLITE: ATS-1 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: AUG 69 - SEP 69

OBJECT OF EXPERIMENT: TO EVALUATE TWO-WAY DATA TRANSMISSION FOR SHIP TO SHORE MARITIME INFORMATION HANDLING SYSTEM

SYNOPSIS: NAVCAT SYSTEMS, INC. IS DEVELOPING A MARITIME INFORMATION HANDLING SYSTEM SIMILAR TO A SPACECRAFT TELEMETRY SYSTEM. SHIP-BOARD SENSORS PROCESS AND DISPLAY CERTAIN INFORMATION TO BRIDGE PERSONNEL AND ADDITIONALLY SENDS IT ASHORE FOR FURTHER EVALUATION. THIS IS A PROPOSAL TO LINK SHIP AND SHORE VIA ATS SATELLITE.

SUBJECT: DATA TRANSMISSION

ABSTRACT: ATS-1 SHIP TO SHORE; NAVCAT SYSTEMS, INC.; MARITIME INFORMATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 207

DATE OF DOCUMENT/TYPER: MAY 1968 / PROPOSAL

TITLE OF DOCUMENT: AUSTRALIAN REQUEST FOR INFORMATION CONCERNING JAPANESE PULSE CODE MODULATION TESTS VIA ATS

AUTHOR: HOMEMCOO, M. I.

SPONSORING AGENCY: DEPARTMENT OF SUPPLY, POSTMASTER GENERAL, CANBERRA, AUSTRALIA

SATELLITE: ATS-1, ATS-2 EXPERIMENT PERIOD: MAY 68 - OCT 68

OBJECT OF EXPERIMENT: TO EXPLORE THE POSSIBILITY OF MEANS WHEREBY AUSTRALIA CAN PARTICIPATE IN JAPANESE PCM COMMUNICATION EXPERIMENTS

ABSTRACT: THIS IS A REQUEST BY AUSTRALIA TO PARTICIPATE IN THE JAPANESE TIME-DIVISION MULTIPLEX PULSE CODE MODULATION (TDM-PCM) EXPERIMENTS.

SUBJECT: DATA TRANSMISSION

KEYWORDS: TIME DIVISION MULTIPLEX; PULSE CODE MODULATION; JAPAN; AUSTRALIA; ATS-1; ATS-2

UNIVERSITY OF DAYTON ACCESS NUMBER: 200

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: JUN 1970 / PROPOSAL

TITLE OF DOCUMENT: REQUEST FOR ATS-1 TIME FOR CONJUGATE AURORAL STUDIES

AUTHOR: PETERSON, R. W.

SPONSORING AGENCY: LOS ALAMOS SCIENTIFIC LABORATORY/UNIVERSITY OF CALIFORNIA, LOS ALAMOS, CALIFORNIA

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: OCT 70 - NOV 70

OBJECT OF EXPERIMENT: TO CONDUCT A SERIES OF CONJUGATE AURORAL STUDIES

ABSTRACT: THESE LETTERS ARE AN EXCHANGE OF CORRESPONDENCE BETWEEN R.W. PETERSON, LOS ALAMOS, AND J. BURK E. NASA, IN REGARD TO A SERIES OF AIRCRAFT MISSIONS TO EVALUATE THE CAPABILITY OF ATS-1 TO FURNISH VHF COMMUNICATION BETWEEN AIRCRAFT IN OPPOSITE HEMISPHERES.

SUBJECT: AIRCRAFT COMMUNICATIONS

KEYWORDS: ATS-1; PICAPOSTER; AURORAL

UNIVERSITY OF DAYTON ACCESS NUMBER: 209

DATE OF DOCUMENT/TYPE: OCT 1972 / CORRESPONDENCE

TITLE OF DOCUMENT: WELLINGTON POLYTECHNIC SATELLITE COMMUNICATION PROJECT INTERIM REPORT

AUTHOR: HANLEY, A.

SPONSORING AGENCY: WELLINGTON POLYTECHNIC, WELLINGTON, NEW ZEALAND

SATELLITE: ATS-1 COMMUNICATIONS: VHF

OBJECT OF EXPERIMENT: TO INVESTIGATE THE USEFULNESS OF CHEAP SELF-OPERATED TERMINALS ESTABLISHED AT EDUCATIONAL INSTITUTIONS THROUGHOUT THE PACIFIC REGION

ABSTRACT: THIS IS A COMMUNICATION FROM THE AM EMBASSY, WELLINGTON, NEW PETERSON, LGS ALAMCS, AND J. BURK F. NASA, IN REGARD TO A SERIES OF ZEALAND TO THE STATE DEPARTMENT PROVIDING A REVIEW OF NEW ZEALAND PARTICIPATION IN THE UNIVERSITY OF HAWAII PEACESAT PROGRAM. COMME

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS

KEYWORDS: PEACESAT: ATS-1: UNIVERSITY OF HAWAII: WELLINGTON POLYTECHNIC INSTITUTE: NEW ZEALAND

UNIVERSITY OF DAYTON ACCESS NUMBER: 210

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DATE OF DOCUMENT/TYPE: 1972 - 73 / CORRESPONDENCE  
TITLE OF DOCUMENT: CORRESPONDENCE BETWEEN BYSTROM AND HARSTEN  
AUTHOR: BYSTROM, J W  
SPONSORING AGENCY: PEACESAT, UNIVERSITY OF HAWAII, HONOLULU, HAWAII

SATELLITE: ATS-1

ABSTRACT: THIS FOLDER CONTAINS CORRESPONDENCE BETWEEN BYSTROM OF PEACESAT AND HARSTEN OF NASA CONCERNING ADDITIONAL USAGE OF ATS-1. MOST OF THE CORRESPONDENCE OCCURS DURING 1972. INCLUDED IS A LIST OF THE "IM" NEEDS OF THE PEACESAT NETWORK FOR THE SUMMER OF 1972.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 211

DATE OF DOCUMENT/TYPE: APR - JUL 1973 / NEWSPAPER ARTICLE

TITLE OF DOCUMENT: PEACESAT STAFF BULLETIN

AUTHOR: UNKNOWN

SPONSORING AGENCY: MANOA CAMPUS, UNIVERSITY OF HAWAII, ISLAND OF OAHU

SATELLITE: ATS-1

ABSTRACT: ISSUES NO. 15-19 OF THE PEACESAT STAFF BULLETIN COVER THE PERIOD APR - JUL 1973. THESE BULLETINS DESCRIBE THE EVERYDAY EVENTS THAT ARE IMPORTANT TO PEACESAT. SUCH ITEMS AS VISITORS, PROGRAM TIPS AND CONTENT, EVALUATIONS, EDITORIALS, ETC. ARE GIVEN ON A DAY-TO-DAY BASIS. THESE BULLETINS GIVE SOME IDEA OF THE TYPE OF PROGRAM BEING CONDUCTED BY PEACESAT.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS; MICRONISIA

UNIVERSITY OF DAYTON ACCESS NUMBER: 212

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DATE OF DOCUMENT/TYPE: 1972

/ SPEECH

TITLE OF DOCUMENT: THE PEACESAT PROJECT: TELECOMMUNICATIONS AND INTERNATIONAL DEVELOPMENT IN HEALTH AND EDUCATION

AUTHOR: RYSTROM, J W

SPONSORING AGENCY: PEACESAT, UNIVERSITY OF HAWAII, HONOLULU, HAWAII

SATELLITE: ATS-1

ABSTRACT: THIS PAPER GIVES A GENERAL BACKGROUND OF PEACESAT. WHILE THERE ARE FEW FACTS GIVEN THE PAPER HAS SOME USEFUL HISTORICAL INFORMATION REGARDING PEACESAT.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS; EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 214

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DATE OF DOCUMENT/TYPE: OCT 1973 / CORRESPONDENCE

TITLE OF DOCUMENT: RESPONSE TO NASA CRITICISM OF PEACESAT COMBINED PROPOSAL AND REPORT

AUTHOR: MYSTROM, J W

SPONSORING AGENCY: PEACESAT, UNIVERSITY OF HAWAII, HONOLULU, HAWAII

SATELLITE: ATS-1

ABSTRACT: THIS LETTER IS A RESPONSE BY PEACESAT TO QUESTIONS RAISED BY NASA CONCERNING A PROPOSAL TO CONTINUE THE PEACESAT PROJECT AT AN INCREASED LEVEL OF ACTIVITY. THE QUESTIONS RAISED AND THE ANSWERS GIVEN ARE PART OF THE RESPONSE. SOME DISCUSSION OF FEDERAL AID IS INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 215

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DATE OF DOCUMENT/TYPE: OCT 1966 / PROPOSAL

TITLE OF DOCUMENT: PEACESAT PROPOSAL FOR EXPERIMENTAL USE OF APPLICATIONS TECHNOLOGY SATELLITES

AUTHOR: SYSTEM, J W

SPONSORING AGENCY: PEACESAT, UNIVERSITY OF HAWAII, HONOLULU, HAWAII

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO PROVIDE AN INTERCONTINENTAL LABORATORY TO UNDERTAKE EXPERIMENTAL AND DEVELOPMENTAL ACTIVITIES IN THE USE OF TELECOMMUNICATION INTERCONNECTS BY SATELLITE.

ABSTRACT: THE PROPOSAL DEALS WITH THE UNIVERSITY OF HAWAII'S USE OF ATS-1 TO SET UP A COMMUNICATIONS EXPERIMENT FOR THE SOUTH PACIFIC. A GENERAL DESCRIPTION OF HOW THE CONSORTIUM WOULD WORK, FIGURES ON NUMBERS OF PEOPLE AFFECTED, AND COST DATA ARE PRESENTED. POSSIBLE EXPERIMENTS TO BE PERFORMED ARE ALSO INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS; PACIFIC

UNIVERSITY OF DAYTON ACCESS NUMBER: 216

DATE OF DOCUMENT/TYPE: AUG 1971 / TECHNICAL MEMORANDUM  
PROPOSAL

TITLE OF DOCUMENT: REPORT AND REQUEST TO NASA FROM PEACESAT

AUTHOR: RYSTROM, J W

SPONSORING AGENCY: PEACESAT, UNIVERSITY OF HAWAII, HONOLULU, HAWAII

SATELLITE: ATS-1

EXPERIMENT PERIOD: 1971

OBJECT OF EXPERIMENT: IMPROVE COMMUNICATIONS IN THE SOUTH PACIFIC

ABSTRACT:

THIS IS A COMBINED PROGRESS REPORT AND REQUEST FOR CONTINUED USE OF ATS-1. INCLUDED IS A HIST  
ORY OF THE PROJECT, EXPERIMENTS PERFORMED, DISCUSSION OF EQUIPMENT, AND A DEVELOPMENT PLAN. ORGANI  
ZATION OF THE PROJECT IS DISCUSSED IN THE SECTION ON PROJECT HISTORY. THE PROPOSED ACTIVITIES PLAN  
IS FOR THE PERIOD FROM AUG 1971-JUL 1972. ALSO, TWO NEWSPAPER ARTICLES ARE INCLUDED WHICH DESCRIB  
E THE PEACESAT CONCEPT.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS; HAWAII; ANTENNA

UNIVERSITY OF DAYTON ACCESS NUMBER: 217

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DATE OF DOCUMENT/TYPER: AUG 1974

/ PROGRESS REPORT

TITLE OF DOCUMENT: EXPERIMENTAL SATELLITE TELECOMMUNICATIONS NETWORKS IN THE PACIFIC HEMISPHERE

AUTHOR: MANLEY, A

SPONSORING AGENCY: WELLINGTON POLYTECHNIC, SCHOOL OF PHYSICS, WELLINGTON, NEW ZEALAND

SATELLITE: ATS-1

EXPERIMENT PERIOD: 1972 - 73

OBJECT OF EXPERIMENT: IMPROVE COMMUNICATIONS CAPABILITY IN THE SOUTH PACIFIC

ABSTRACT:

SINCE 1972 A REMARKABLE SERIES OF EXPERIMENTS IN INTERNATIONAL CONFERENCE TELECOMMUNICATIONS F OF SOCIAL BENEFIT HAS BEEN TAKING PLACE IN THE PACIFIC HEMISPHERE. EXPERIMENTAL NETWORKS LINKED BY ATS-1 SATELLITE RELAY HAVE BEEN ESTABLISHED IN ALASKA AND THE PACIFIC FOR SOME TIME. ADDITIONAL NETWORKS ARE TO BECOME OPERATIONAL DURING 1974. WELLINGTON POLYTECHNIC HAS BEEN ONE OF THE CHIEF EXPERIMENTERS IN THE INTERNATIONAL PACIFIC NETWORK (THE PEACESAT PROJECT), AND CONSIDERABLE EXPERIENCE OF THE PROBLEMS AND POTENTIAL USES OF SUCH NETWORKS HAS BEEN ACCUMULATED. THIS EXPERIENCE WILL BE REPORTED, AND CURRENT ACTIVITY AND FUTURE PLANS FOR SATELLITE LINKED NETWORKS REVIEWED. THE SPECIAL FEATURES OF SUCH 'BI-LATERAL BROADCASTING' NETWORKS WILL BE DISCUSSED. THE PROBLEMS OF PROVIDING FOR THESE NETWORKS ON AN OPERATIONAL BASIS WILL BE CONSIDERED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; SOUTH PACIFIC; COMMUNICATIONS; ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 216

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DATE OF DOCUMENT/TYPE: NOV 1974 / NEWSPAPER ARTICLE

TITLE OF DOCUMENT: SATELLITE

AUTHOR: UNKNOWN

SPONSORING AGENCY: WELLINGTON POLYTECHNIC, PEACESAT PROJECT, WELLINGTON, NEW ZEALAND

SATELLITE: ATS-1

EXPERIMENT PERIOD: OCT - DEC 1974

ABSTRACT:

BULLETIN NOS. 65 THRU 70 OF SATELLITE, A WEEKLY PUBLICATION OF INFORMATION ON PROGRESS OF THE PEACESAT EXPERIMENT AT WELLINGTON POLYTECHNIC. INCLUDED ARE WEEKLY PROGRAMMING SCHEDULES, COMMENTS ON PAST EXCHANGES, AND PEACESAT NEWS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS; SOUTH PACIFIC

UNIVERSITY OF DAYTON ACCESS NUMBER: 219

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DATE OF DOCUMENT/TYPER: DEC 1970

/ PROPOSAL

TITLE OF DOCUMENT: PEACOSAT REQUEST AND PROPOSAL TO NASA FROM THE UNIVERSITY OF HAWAII AS AGENT FOR THE STATE OF HAWAII

AUTHOR: RYSTROM, J A

CONDUCTING AGENCY: UNIVERSITY OF HAWAII, PEACOSAT PROJECT, HONOLULU, HAWAII

SATELLITE: ATS-1

EXPERIMENT PERIOD: 1970

OBJECT OF EXPERIMENT: TO DEMONSTRATE A SATELLITE COMMUNICATION SYSTEM FOR SPARSELY POPULATED AREAS OF LOW TECHNOLOGICAL DEVELOPMENT

ABSTRACT:

IT IS PROPOSED TO USE THE ATS-1 GEOSTATIONARY SATELLITE AS A RELAY TO INTERCONNECT INSTITUTIONS OF HIGHER EDUCATION IN THE PACIFIC BASIN AS WELL AS RELATED HEALTH, EDUCATION, AND COMMUNITY SERVICE ACTIVITIES FOR PURPOSE OF TWO-WAY VOICE, TELETYPE, AND FACSIMILE COMMUNICATIONS. THIS COMMUNICATION NETWORK WOULD PERMIT INFORMATION SHARING AND JOINT ACTIVITIES IN INSTRUCTION, RESEARCH, AND COMMUNITY DEVELOPMENT. THE PROPOSED DEMONSTRATION WILL BE DEVELOPED IN TWO STEPS: PHASE ONE WILL INCLUDE TWO GROUND STATIONS, ONE PLACED AT THE MANOA CAMPUS OF THE UNIVERSITY OF HAWAII (HONOLULU, ISLAND OF OAHU) AND ONE PLACED AT THE HILO COLLEGE CAMPUS OF THE UNIVERSITY OF HAWAII (HILO, ISLAND OF HAWAII). IT IS PLANNED THAT A THIRD GROUND STATION WILL BE OPERATED IN A RURAL LOCATION UNASSIGNED TO YET TO DEMONSTRATE OPERATIONS UNDER CIRCUMSTANCES LIKE THOSE IN REMOTE AREAS OF THE PACIFIC. PHASE TWO WILL DEPEND ON THE RESULTS OF PHASE ONE. ASSUMING SUCCESS, ADDITIONAL GROUND STATIONS WILL BE PLACED AT FOREIGN AND DOMESTIC UNIVERSITY LOCATIONS, THUS CREATING AN EDUCATIONAL NETWORK.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACOSAT; COMMUNICATIONS; SCHEDULING

UNIVERSITY OF DAYTON ACCESS NUMBER: 220

DATE OF DOCUMENT/TYPE: 1973 / CORRESPONDENCE  
TITLE OF DOCUMENT: CORRESPONDENCE CONCERNING PEACESAT  
AUTHOR: UNKNOWN  
SPONSORING AGENCY: UNIVERSITY OF HAWAII AND THE STATE OF HAWAII, HONOLULU, HAWAII  
SATELLITE: ATS-2 EXPERIMENT PERIOD: 1973  
ABSTRACT: FOLDER CONTAINS A LARGE QUANTITY OF CORRESPONDENCE BETWEEN PEACESAT BACKERS AND NASA OFFICIALS  
SUBJECT: EDUCATIONAL APPLICATIONS  
KEYWORDS: ATS-2 SATELLITE; PEACESAT; COMMUNICATIONS

UNIVERSITY OF CALIFORNIA ACCESS NUMBER: 221

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DATE OF DOCUMENT/TYPER 1972

/ PAPER

TITLE OF DOCUMENT: SATELLITES FOR U.S. EDUCATION: NEEDS, OPPORTUNITIES AND SYSTEMS

AUTHOR: MORGAN, R. P.; SINGH, J. P.; ANDERSON, S. D.; GREEKBERG, E.

SPONSORING AGENCY: WASHINGTON UNIVERSITY, ST. LOUIS, MISSOURI

ABST-ACR:

THIS PAPER PRESENTS RESULTS OF A CONTINUING INTERDISCIPLINARY STUDY OF THE POTENTIAL APPLICATIONS OF FERRY- AND BROADCAST-SATELLITES FOR EDUCATIONAL INFORMATION TRANSFER IN THE UNITED STATES FOR THE PERIOD 1975-1985. THE STATUS OF U.S. EDUCATION IS EXAMINED AND NEEDS, TRENDS AND ISSUES ARE DISCUSSED. THE EXISTING EDUCATIONAL TELECOMMUNICATIONS INFRASTRUCTURE IS EXAMINED AND OPPORTUNITIES FOR SATELLITE SERVICES ARE DEFINED. POTENTIAL USES INCLUDE NETWORKING OF EDUCATIONAL INSTITUTIONS AND SERVICE CENTERS FOR DELIVERY OF PUBLIC AND INSTRUCTIONAL TELEVISION, COMPUTER-AIDED INSTRUCTION, COMPUTING AND INFORMATION RESOURCES TO REGIONS AND GROUPS NOT NOW ADEQUATELY SERVED. SYSTEMS ALTERNATIVES AND SOME OF THE ORGANIZATIONAL AND ECONOMIC ISSUES INHERENT IN THE DEPLOYMENT OF AN EDUCATIONAL SATELLITE SYSTEM ARE DISCUSSED.

SUBJECT: EDUCATIONAL APPLICATIONS HISTORICAL INFORMATION

KEYWORDS: APPLICATION TECHNOLOGY; SATELLITE; SATELLITE COMMUNICATIONS; EDUCATIONAL TECHNOLOGY; PUBLIC BROADCASTING CORPORATION; COMPUTER ASSISTED INSTRUCTION

UNIVERSITY OF DAYTON ACCESS NUMBER: 222

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DATE OF DOCUMENT/TITLE: MAY 1972 / HISTORICAL INFORMATION

TITLE OF DOCUMENT: A STUDY OF THE POTENTIAL OF TELECOMMUNICATIONS AND EDUCATIONAL TECHNOLOGY TO SATISFY THE EDUCATIONAL COMMUNICATIONS NEEDS OF THE STATE OF ALASKA.

AUTHOR: LING, GUILIN

SPONSORING AGENCY: TELECONSULT, INC., WASHINGTON, D.C.

SATELLITE: ATS-2

ABSTRACT: THIS STUDY INCLUDES A SURVEY OF ECONOMIC CONDITIONS AFFECTING EDUCATIONAL REQUIREMENTS, A SURVEY OF EXISTING TELECOMMUNICATIONS FACILITIES, AND A SURVEY OF EDUCATIONAL REQUIREMENTS. ALSO INCLUDED ARE INSTRUCTIONAL TECHNOLOGY OPTIONS AND EDUCATIONAL TELECOMMUNICATIONS REQUIREMENTS. THIS REPORT IS BASICALLY A RESOURCE WORK FOR ALASKA'S FUTURE EDUCATIONAL NEEDS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-2; SATELLITE; ALASKA; COMMUNICATIONS; EDUCATION; INSTRUCTIONAL TECHNOLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 224

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OR FOR QUALITY

DATE OF DOCUMENT/TYPER: 1973

/ PUBLIC RELATIONS

TITLE OF DOCUMENT: 1972-1973 ANNUAL REPORT OF GEOPHYSICAL INSTITUTE

AUTHOR: UNKNOWN

SPONSORING AGENCY: GEOPHYSICAL INSTITUTE, UNIVERSITY OF ALASKA, COLLEGE, ALASKA

SATELLITE: ATS-1, ITS-5

EXPERIMENT PERIOD: 1972-73

ABSTRACT: THIS ANNUAL REPORT CONTAINS SEVERAL REFERENCES TO USES OF ATS SATELLITES. WORK BEING DONE TO OBSERVE SUBST-M-ASSOCIATED VARIATIONS OF THE PLASMA SHEET NEAR ITS FORWARD EDGE USING ITS-5 IS DESCRIBED. THE ALASKA BIOMEDICAL AND EDUCATIONAL EXPERIMENT USING ATS-1 IS REFERENCED AS IS THE INSTITUTE'S PARTICIPATION IN THE PING PONG EXPERIMENT. ALSO MENTIONED IS THE WORK BEING DONE ON THE TRANSMISSION OF DIGITAL DATA THROUGH THE IONOSPHERE AND SCINTILLATION MEASUREMENT.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; ATS-5; SATELLITE; SCINTILLATION MEASUREMENTS; PLASMA SHEET; MEDICAL COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 225

DATE OF DOCUMENT/TYPER: FEB 1967 / TECHNICAL REPORT  
TITLE OF DOCUMENT: VHF REPEATER EXPERIMENT - FINAL REPORT  
AUTHOR: UNKNOWN  
SPONSORING AGENCY: HUGHES AIRCRAFT CO., SPACE SYSTEMS DIVISION  
SATELLITE: ATS-1

ABSTRACT: THIS REPORT IS THE CONCLUSION OF THE VHF REPEATER EXPERIMENT PERFORMED BY HUGHES AIRCRAFT COMPANY P  
OF HISS. THE REPORT CONTAINS THE DETAILS ON THE DESIGN OF THE VHF REPEATER FOR ATS-1. IN ADDITION  
TO THE TECHNICAL DATA ON THE REPEATER SOME HISTORICAL INFORMATION ON THE DEVELOPMENT IS INCLUDED.  
THIS IS NOT A USER EXPERIMENT BUT IT DOES CONTAIN SOME BACKGROUND INFORMATION ON THE DEVELOPMENT O  
F ATS-1.

SUBJECT: HISTORICAL INFORMATION  
KEYWORDS: ATS-1; SATELLITE; VHF; ANTENNA; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 226

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DATE OF DOCUMENT/TITLE: JAN 1975 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: FINAL TECHNICAL REPORT - THE ALOHA SYSTEM  
 AUTHOR: ARIMSON, NORMAN  
 SPONSORING AGENCY: THE ALOHA SYSTEM, UNIVERSITY OF HAWAII, HONOLULU, HAWAII  
 SATELLITE: STS-1 EXPERIMENT PERIOD: 1971-1974  
 OBJECT OF EXPERIMENT: TO PERFORM THEORETICAL STUDIES ON AND EXPERIMENTAL TESTS OF RADIO LINKED ALOHA TYPE NETWORKS. TO INVESTIGATE MULTIPROCESSING SYSTEM TECHNIQUES.  
 ABSTRACT: RESEARCH IN THE ALOHA SYSTEM IS DESCRIBED IN THIS REPORT. THE RESULTS OF SIMULATION STUDIES OF ALOHA TYPE RADIO CHANNELS FOR USE IN PACKET SWITCHING ARE REPORTED. ALSO DISCUSSED IS THE DESIGN AND DEVELOPMENT OF A PACKET RADIO REPEATER SUITABLE FOR USE WITH THE ALOHA SYSTEM OPERATIONAL NETWORK  
 SUBJECT: DATA TRANSMISSION  
 KEYWORDS: STS-1; SATELLITE; ALOHA; PACKET SWITCHING; COMPUTERS; MULTIPROCESSOR

UNIVERSITY OF DAYTON ACCESS NUMBER: 227

DATE OF DOCUMENT/TYPE: OCT 1967 / CORRESPONDENCE

TITLE OF DOCUMENT: CORRESPONDENCE RELATED TO ATS USE BY GERMANY

AUTHOR: HAYER, W.

SPONSORING AGENCY: BUNDESMINISTERIUM FÜR WISSENSCHAFTLICHE FORSCHUNG, 5300 BONN 9, FEDERAL REPUBLIC OF GERMANY

SATELLITE: ATS-1 EXPERIMENT PERIOD: APR-MAY 1968

ABSTRACT: THE CORRESPONDENCE CONCERNS USE OF ATS-3 BY THE GERMAN RESEARCH METEOR. ALSO MENTIONED IN THE CORRESPONDENCE IS THE OPLE EXPERIMENT AND LUFTHANSA'S POSSIBLE PARTICIPATION IN AN AIRCRAFT/GROUND EXPERIMENT ALONG THE LINES OF AFINC. SUBSEQUENT CORRESPONDENCE INDICATES LUFTHANSA DID NOT PARTICIPATE IN THE EXPERIMENT.

SUBJECT: METEOR: TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-3; SATELLITE; METEOR; OPLE EXPERIMENT; GERMANY; VHF

UNIVERSITY OF DAYTON ACCESS NUMBER: 229

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DATE OF DOCUMENT/TYPER: AUG 1970 / PRELIMINARY REPORT

TITLE OF DOCUMENT: PRELIMINARY REPORT: EXPERIMENTAL SATELLITE SYSTEM FOR ALASKA

AUTHOR: UNKNOWN

SPONSORING AGENCY: CSC AND GEFC

SUBJECT OF EXPERIMENT: PROVIDE A CATALOG OF SELECTION CRITERIA FOR DETERMINING THE COST AND SCHEDULE PARAMETERS ASSOCIATED WITH AN EXPERIMENTAL SATELLITE SYSTEM FOR ALASKA.

ABSTRACT: THE RANGE OF CAPABILITIES IN AVAILABLE SATELLITE TECHNOLOGY IS HEREIN PRESENTED WITH MATCHING GROUND SYSTEMS TO PROVIDE A PILOT TELEVISION CHANNEL AND A USEFUL NUMBER OF VOICE CHANNELS. SUFFICIENT DATA ARE PROVIDED SO THAT A DECISION CAN BE MADE AS TO WHICH SATELLITE SYSTEM WILL PROVIDE A COST-EFFECTIVE EXPERIMENT WITH POTENTIAL TO GROW TO A FULL SCALE OPERATIONAL SYSTEM FOR SUBSEQUENT IMPLEMENTATION.

SUBJECT: VOICE COMMUNICATIONS HISTORICAL INFORMATION

KEYWORDS: SATELLITE ALASKA: SATELLITE COST: COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 232

DATE OF DOCUMENT/TYPE: JUL 74 / PUBLIC RELATIONS  
TITLE OF DOCUMENT: RF NETWORK ON LAND, ON SEA, IN THE AIR  
AUTHOR: UNKNOWN  
SPONSORING AGENCY: GENERAL ELECTRIC, SCHENECTADY, NEW YORK  
SATELLITE: ATS-1, ATS-3

ABSTRACT: THIS DOCUMENT GIVES A BRIEF DESCRIPTION OF GENERAL ELECTRIC'S EFFORT IN RANGING AND POSITION FIXING USING ATS SATELLITES.

SUBJECT: AIR TRAFFIC CONTROL MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-1 ATS-3 SATELLITE RANGING POSITION FIXING VHF

UNIVERSITY OF DAYTON ACCESS NUMBER: 233

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DATE OF DOCUMENT/TYPER: 1973

/ JOURNAL ARTICLE

TITLE OF DOCUMENT: COMMUNICATIONS AND POSITION FIXING EXPERIMENTS USING THE ATS SATELLITES

AUTHOR: ANDERSON, P.E.

SPONSORING AGENCY: GENERAL ELECTRIC, SCHENECTADY, NEW YORK

SATELLITE: ATS-1, ATS-2, ATS-5

EXPERIMENT PERIOD: 1969-1973

ABSTRACT:

ATS-5, ATS-2 AND ATS-1 SATELLITES WERE USED IN A SERIES OF RANGING, POSITION FIXING AND COMMUNICATIONS EXPERIMENTS AT L-BAND AND VHF. COMMUNICATIONS INCLUDED VOICE, DIGITAL, TELETYPE AND FACSIMILE TRANSMISSIONS.

THE DIGITAL COMMUNICATIONS AND RANGING TECHNIQUE THAT WAS DEVELOPED FROM THESE EXPERIMENTS USING A SINGLE SIGNALLING WAVEFORM AND A SINGLE MODEM FOR COMMUNICATIONS AND RANGING. EXPERIMENTS WITH THE SIGNALLING PARAMETERS SUGGESTED FOR AN OPERATIONAL SYSTEM ACHIEVED A RANGING PRECISION BETTER THAN 50 FEET WITH A MODULATION FREQUENCY LESS THAN 10 KHZ, AN RF BANDWIDTH LESS THAN 60 KHZ, AND A RANGING SIGNAL DURATION OF 3. MILLISECONDS. AN AUTOMATIC TRANSPONDER THAT RESPONDS AT L-BAND THROUGH ATS-5 AND AT VHF THROUGH ATS-2 WAS LOCATED WITH A PRECISION APPROACHING 0.1 NMI., 1 SIGMA.

EVERY FACTOR THAT AFFECTS COMMUNICATIONS RELIABILITY AND POSITION FIXING ACCURACY WAS MEASURED AND EVALUATED IN THE EXPERIMENTAL PROGRAM BETWEEN 1969 AND 1973.

HUNDREDS OF HOURS OF COMMUNICATIONS AND MORE THAN A MILLION RANGE MEASUREMENTS HAVE PROVIDED DATA ON ALL FACTORS THAT AFFECT COMMUNICATIONS RELIABILITY AND POSITION FIX ACCURACY. THE EXPERIMENTS HAVE CONFIRMED THAT ALL THE FACTORS CAN BE CONTROLLED AND THAT HIGH QUALITY, RELIABLE COMMUNICATIONS AND USEFUL POSITION FIXING ACCURACY CAN BE PROVIDED TO MARITIME AND AERONAUTICAL USERS BY PRACTICAL MEANS USING SATELLITES AT L-BAND.

CONCLUSION: IT IS REASONABLE TO EXPECT THAT AN OPERATIONAL SYSTEM AT L-BAND CAN PROVIDE POSITION FIX ACCURACY OF 0.1 NMI.

SUBJECT: MARITIME TRAFFIC CONTROL

KEYWORDS: APPLICATION TECHNOLOGY SATELLITE; RANGING; POSITION FIXING; DATA TRANSMISSION; L-BAND

JOURNAL TITLE: JOURNAL OF THE INSTITUTE OF NAVIGATION, VOL. 23, ISSUE 4, PAGES 329-345

UNIVERSITY OF DAYTON ACCESS NUMBER: 234

DATE OF DOCUMENT/TITLE: JUN 1975 / PAPER

TITLE OF DOCUMENT: L-BAND TRILATERATION OF ATS-5

AUTHOR: PRISKEN, L.F.

SPONSORING AGENCY: GENERAL ELECTRIC COMPANY, CORPORATE RESEARCH AND DEVELOPMENT, SCHENECTADY, NEW YORK

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: ACCURATELY DETERMINE THE POSITION OF ATS-5

ABSTRACT:

AN L-BAND TRILATERATION NETWORK HAS BEEN DEVELOPED WHICH LOCATES THE ATS-5 SATELLITE IN NEAR REAL-TIME AND PROVIDES SHORT TERM POSITION PREDICTIONS. DURING A PERIOD OF TWO MONTHS, A LOCATION PRECISION OF 0.0002 DEGREES IN LATITUDE AND LONGITUDE AND 25 METERS IN EARTH CENTER DISTANCE HAS BEEN ACHIEVED. THE ACCURACY OF POSITION FIXES IS ESTIMATED AT 0.0005 DEGREES LATITUDE AND LONGITUDE AND 50 METERS EARTH CENTER DISTANCE. ON EVERY RANGE MEASUREMENT, SELF CALIBRATION CIRCUITS IN THE TWO AUTOMATIC REMOTE TRANSPONDERS RETURN TO THE MASTER GROUND STATION A MEASUREMENT OF THE TIME DELAY EXPERIENCED BY THE RANGING SIGNAL AS IT PASSES THROUGH THE TRANSPONDER, THUS ELIMINATING A MAJOR SOURCE OF UNCERTAINTY IN CLANT RANGE ACCURACY.

THIS PAPER CONSIDERS ALL FACTORS WHICH AFFECT THE ACCURACY OF THIS L-BAND SATELLITE TRILATERATION NETWORK AND COMPARES THE RESULTS WITH THOSE OBTAINED WITH NASA'S C-BAND RANGE AND RANGE RATE MEASUREMENTS.

CONCLUSION: L-BAND TRILATERATION POSITIONS OF ATS-5 AGREE WITH NASA COMPUTED POSITIONS TO WITHIN 0.0005 DEGREES IN LONGITUDE AND 0.00025 DEGREES IN LATITUDE, AND 50 METERS EARTH CENTER DISTANCE.

SUBJECT: NAVIGATION TRAFFIC CONTROL

KEYWORDS: ATS-5; SATELLITE; TRILATERATION; L-BAND; RANGING

JOURNAL TITLE: INSTITUTE OF NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 235

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DATE OF DOCUMENT/TYPER: OCT 1977

/ TECHNICAL REPORT

TITLE OF DOCUMENT: EXPERIMENTAL INVESTIGATION OF AERONAUTICAL AND MARITIME COMMUNICATIONS AND SURVEILLANCE USING SATELLITES

AUTHOR: ANDERSON, P.E.

SPONSORING AGENCY: GENERAL ELECTRIC COMPANY, CORPORATE RESEARCH AND DEVELOPMENT, SCHENECTADY, NEW YORK

SATELLITE: ATS-1, ATS-3, ATS-5

EXPERIMENT PERIOD: 1968-1973

ABSTRACT:

FACTORS THAT AFFECT COMMUNICATIONS RELIABILITY AND POSITION FIXING ACCURACY WERE MEASURED AND EVALUATED IN THE EXPERIMENTAL PROGRAM BETWEEN 1968 AND 1973. AUTOMATIC TRANSPONDERS WERE CARRIED ON SHIPS IN THE ATLANTIC, PACIFIC AND GULF OF MEXICO AND ON THE MISSISSIPPI RIVER; ON JET AND PROPELLER DRIVEN AIRCRAFT FLYING OVER THE CONTINENTAL UNITED STATES AND NORTH ATLANTIC TO SHANNON, IRELAND AND THULE, GREENLAND; ON A BOAT MOORED IN DEEP WATER OFF BERMUDA; AND IN A PANEL TRUCK DRIVEN OVER CCU RTRY ROADS IN UPSTATE NEW YORK. AUTOMATIC TRANSPONDERS AT SHANNON, IRELAND; REYKJAVIK, ICELAND; SCHENECTADY, NEW YORK; KINGS POINT, NEW YORK; SEATTLE, WASHINGTON; AND BUENOS AIRES, ARGENTINA WERE USED TO TEST A TRIANGULATION TECHNIQUE FOR REAL-TIME SATELLITE LOCATION AND TO MEASURE PROPAGATION AND OTHER FACTORS THAT AFFECT COMMUNICATION RELIABILITY AND RANGING ACCURACY.

CONCLUSIONS:

THE TONE-CODE RANGING TECHNIQUE PROVIDED A PRECISION OF APPROXIMATELY 0.1 NMI. AT MID-LATITUDE WITH ONE RANGE MEASUREMENT AT L-BAND, ONE AT VHF USING SIGNALLING CHARACTERISTICS AND PARAMETERS THAT ARE COMPATIBLE WITH COMMUNICATIONS.

THE RANGING TECHNIQUE IS DIGITAL AND COMPATIBLE WITH COMMUNICATIONS. RANGING SIGNALS ARE SO SHORT IN DURATION THAT THEY COULD BE INSERTED IN PAUSES IN SPEECH COMMUNICATIONS. ESTIMATIONS FROM THE COST OF EXPERIMENTAL EQUIPMENTS SHOW THAT IT WILL COST ONLY A MODEST SUM TO ADD CIRCUITS FOR POSITION FIXING TO THE SATELLITE COMMUNICATIONS EQUIPMENT FOR A SHIP OR AIRCRAFT.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: APPLICATION TECHNOLOGY SATELLITE; SATELLITE; RANGING; POSITION FIXING; VHF; L-BAND; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 236

DATE OF DOCUMENT/TYPER: NOV 1970

/ TECHNICAL REPORT

TITLE OF DOCUMENT: MILLIMETER-WAVE PROPAGATION EXPERIMENTS UTILIZING THE ATS-5 SATELLITE

AUTHOR: IPOLITO, L.J.

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS-5

ABSTRACT: SIX EXPERIMENTS ARE DESCRIBED. THE TITLES ARE: (1) PROPAGATION STATISTICS FOR 15 AND 32 GHZ EARTH-SPACE TRANSMISSIONS FROM THE APPLICATIONS TECHNOLOGY SATELLITE; (2) ATTENUATION, EMISSION AND BACKSCATTER BY PRECIPITATION; (3) PROPAGATION DATA FROM CRAWFORD HILL; (4) MILLIMETER WAVE PROPAGATION MEASUREMENTS WITH ATS-5 AT COMSAT LABS; (5) A MILLIMETER WAVE DIVERSITY PROPAGATION EXPERIMENT; (6) EFFECTS OF RAIN ON AN EARTH-SATELLITE PATH AT 15 GHZ.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-5; SATELLITE; WAVE PROPAGATION; MILLIMETER-WAVE EXPERIMENT

UNIVERSITY OF DAYTON ACCESS NUMBER: 236

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DATE OF DOCUMENT/TYPE: JUN 1967 / PROPOSAL

TITLE OF DOCUMENT: A PROPOSAL FOR AN ATS RANGING AND POSITION FIXING EXPERIMENT

AUTHOR: COLLINS, L.A.

SPONSORING AGENCY: GENERAL ELECTRIC COMPANY, RESEARCH AND DEVELOPMENT CENTER, SCHENECTADY, NEW YORK

SATELLITES: ATS-1, ATS-2

OBJECT OF EXPERIMENT: TO IMPROVE RANGING AND POSITION FIXING TECHNIQUES BY USING ATS

ABSTRACT: GE IS PROPOSING TO DEMONSTRATE THE FEASIBILITY OF RANGING AND POSITION FIXING FROM ATS TO SMALL MOBILE TERMINALS AT VHF RADIO FREQUENCIES AND TO DEMONSTRATE THE ADVANTAGES OF A PULSE TRAIN TECHNIQUE FOR A MORE EFFICIENT USE OF SATELLITE ENERGY

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-1; ATS-2; SATELLITE; RANGING; POSITION FIXING; PULSE TRAIN; LOW ENERGY SPEECH TRANSMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 239

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DATE OF DOCUMENT/TYPE: MAY 1967 / PROGRESS REPORT

TITLE OF DOCUMENT: MONTHLY REPORT OF AIRINC/AIRLINE INDUSTRY PARTICIPATION IN NASA ATS-1 VHF COMMUNICATIONS EXPERIMENT

AUTHOR: UNKNOWN

SPONSORING AGENCY: AERONAUTICAL RADIO, INC., ANNAPOLIS, MARYLAND

SATELLITE: ATS-1

EXPERIMENT PERIOD: MAR-MAY 1967

ABSTRACT:

SECTION 1 OF THIS MONTHLY PROGRESS REPORT CONTAINS THE RESULTS OF TESTS CONDUCTED WITH PAN AMERICAN WORLD AIRLINES. THESE TESTS WERE CONDUCTED TO PROVIDE A SAMPLE OF QUANTITATIVE DATA TO BE USED IN VALIDATING OF INSTRUMENTATION, DATA REDUCTION AND ANALYSIS WHICH HAVE BEEN DESIGNED BY AIRINC. DATA IS PRESENTED IN GRAPHICAL FORM. SECTION 2 CONTAINS DATA COLLECTED FROM QUANTAS EMPIRE AIRWAYS, LTD. SECTION 3 CONTAINS DATA FROM TESTS CONDUCTED WITH UNITED AIR LINES USING A GORNE AND SATCOM ANTENNA. SECTION 4 DESCRIBES WORK IN TRANSMISSION OF VOICE AND SLOW SCAN TV SIGNALS.

SUBJECT:

AIR TRAFFIC CONTROL

AIRCRAFT COMMUNICATIONS

KEYWORDS:

ATS-1; SATELLITE; VHF; COMMUNICATIONS; SATCOM; AIRCRAFT; ANTENNA

UNIVERSITY OF DAYTON ACCESS NUMBER: 248

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DATE OF DOCUMENT/TYPE: MARCH 68 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF REPORT ON AIRINC/AIRLINE INDUSTRY TESTS

AUTHOR: RETPV, C &

SPONSORING AGENCY: AERONAUTICAL RADIO, INC.

SATELLITE: ATS-1; ATS-3 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: JUN 67 - JUL 70

OBJECT OF EXPERIMENT: INVESTIGATE AIR-GROUND COMMUNICATIONS VIA SATELLITE AT VHF

ABSTRACT: PARTICIPANTS AT VARIOUS TIMES INCLUDED THE CANADIAN DEPARTMENT OF TRANSPORTATION, THE FEDERAL AVIATION ADMINISTRATION, THE U. S. COAST GUARD, PAN AMERICAN AIRLINES, UNITED AIRLINES, TRANS WORLD AIRLINES, THE BOEING COMPANY, HUGHES AIRCRAFT COMPANY, AND JAPAN AIRLINES.

SUBJECT: AIR TRAFFIC CONTROL AIRCRAFT COMMUNICATIONS

KEYWORDS: AIRCRAFT; ATS-1; ATS-3; VHF

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DATE OF DOCUMENT/TYPE: JAN 72 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE REPORT ON AIRBORNE SATELLITE COMMUNICATIONS DURING AURORAL STUDIES

AUTHOR: GARCIA, M M

SPONSORING AGENCY: ERG, INC.

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: JAN 68 - DEC 71

OBJECT OF EXPERIMENT: PROVIDE SATELLITE COMMUNICATIONS LINKS BETWEEN AIRCRAFT ENGAGED IN TESTS OF CONJUGAL-POINT HF COMMUNICATIONS.

ABSTRACT: ERG PROVIDED TERMINAL EQUIPMENT FOR VOICE COMMUNICATIONS VIA ATS VHF TRANSPONDERS BETWEEN TWO AIRCRAFT FLYING AT HIGH ALTITUDES IN OPPOSITE HEMISPHERES. COMMUNICATIONS WERE PROVIDED DURING CONJUGATE AURORAL STUDY FLIGHTS IN 1968, 1970 AND 1971. COMMUNICATIONS DURING THE 1968 AND 1970 FLIGHTS WERE CHARACTERIZED BY ERG AS LESS THAN ADEQUATE DUE PRIMARILY TO PROBLEMS IN THE TERMINAL EQUIPMENT ABOARD THE AIRCRAFT. FOR THE 1971 STUDIES MAJOR IMPROVEMENTS WERE MADE TO ALL UNITS OF THE AIRBORNE PACIC SYSTEM. THESE IMPROVEMENTS RESULTED IN TROUBLEFREE SYSTEMS AND EFFECTED A MARKED INCREASE IN VOICE COMMUNICATIONS RELIABILITY.

SUBJECT: AIRCRAFT COMMUNICATIONS METEOROLOGY

KEYWORDS: AURORAL; AIRCRAFT; ATS-1

TECHNICAL REPORT NUMBER: AL-726 UNIVERSITY OF DAYTON ACCESS NUMBER: 242

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DATE OF DOCUMENT/TITLE: NOV 70 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF TRANSCONTINENTAL INTERCONNECTION EXPERIMENT (TIE)

AUTHOR: BOTH, E J

SPONSORING AGENCY: CORPORATION FOR PUBLIC BROADCASTING

SATELLITES: ATS-1, ATS-3 COMMUNICATIONS: TV

EXPERIMENT PERIOD: 4 JAN 70 - 26 MAR 70

OBJECT OF EXPERIMENT: (1) EVALUATE PERFORMANCE OF A TRANSCONTINENTAL SATELLITE LINK FOR VIDEO INTERCONNECTION, BOTH AS AN INDEPENDENT OPERATION AND AS PART OF A COMPOSITE SERVICE INCLUDING RADIO RELAY AND LOCAL DISTRIBUTION LINKS;  
(2) EVALUATE THE FEASIBILITY OF INTERFERENCE-FREE TELEVISION RECEPTION FROM SATELLITES BY MEDIUM SIZE RECEIVING STATIONS IN AN URBAN ENVIRONMENT CONTAINING RADIO RELAY FACILITIES USING THE SAME FREQUENCY BANDS.

ABSTRACT: THE EXPERIMENT CONSISTED OF TRANSMISSION OF VARIOUS STANDARD TEST SIGNALS TO ESTABLISH LINK PERFORMANCE CHARACTERISTICS FOLLOWED BY TRANSMISSION OF PROGRAM MATERIAL TO THE EDUCATIONAL OUTLET KGET IN LOS ANGELES. ATAT LONG LINES PROVIDED INTERCONNECTION BETWEEN PROGRAM SOURCE AND THE RCSMAN GROUND STATION AND FROM THE MOJAVE GROUND STATION TO KGET.

SUBJECT: BROADCASTING

KEYWORDS: TELEVISION; BROADCASTING; ATS-1; ATS-3; TRANSCONTINENTAL INTERCONNECTION; VIDEO LINK

UNIVERSITY OF DAYTON ACCESS NUMBER: 243

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DATE OF DOCUMENT/TYPE: JUN 72 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF INTERIM REPORTS TO NASA FROM THE UNIVERSITY OF HAWAII ON THE PEACESAT PROJECT

AUTHOR: UNIVERSITY OF HAWAII

SPONSORING AGENCY: UNIVERSITY OF HAWAII

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: FEB 71 - JUN 72

OBJECT OF EXPERIMENT: THE PURPOSE OF PEACESAT IS TO DEMONSTRATE THE BENEFITS OF APPLYING TELECOMMUNICATION TECHNOLOGY TO THE NEEDS OF SPARSELY POPULATED, LESS UNDUSTRIALIZED AREAS OF THE WORLD. THE PROJECT PROVIDES AN INTERCONTINENTAL LABORATORY TO DEVELOP IMPROVED COMMUNICATION METHODS FOR EDUCATIONAL, HEALTH, AND COMMUNITY SERVICES IN THE PACIFIC AND A BASE FOR LONG RANGE PLANNING.

ABSTRACT: PEACESAT IS DEVELOPING A DEMONSTRATION NETWORK LINKING EDUCATIONAL INSTITUTIONS IN THE PACIFIC OCEAN AREA USING THE VHF TRANSPONDER IN ATS-1. AS OF JUNE 23, 1972 GROUND TERMINALS HAVE BEEN ESTABLISHED AT: 1. THE UNIVERSITY OF HAWAII, MANOA CAMPUS (ISLAND OF OAHU); 2. HAWAII COMMUNITY COLLEGE AND HILO COLLEGE (ISLAND OF HAWAII); 3. WELLINGTON POLYTECHNIC INSTITUTE AT WELLINGTON, NEW ZEALAND; 4. THE UNIVERSITY OF THE SOUTH PACIFIC AT SUVA, FIJI; 5. AMERICAN SAMOA; 6. KINGDOM OF TONGA; 7. MAUI COMMUNITY COLLEGE (ISLAND OF MAUI).

TALKS ARE NEARING CONCLUSION AND FUNDING IS AVAILABLE FOR GROUND TERMINALS AT: 8. UNIVERSITY OF PAPUA AND NEW GUINEA AT GOROKO, PNG; 9. SAIPAN; AND 10. TRUK, IN THE TRUST TERRITORY OF THE PACIFIC ISLANDS.

FOR SOME OF THESE LOCATIONS, THE PEACESAT NETWORK WILL PROVIDE THE FIRST RELIABLE INSTANTANEOUS COMMUNICATION WITH WORLD POPULATION CENTERS. BECAUSE OF THE LOW COST AND EASE OF OPERATION, A GROUND STATION TERMINAL CAN BE ESTABLISHED ANYWHERE. WITH ITS MOBILE POWER SOURCE, IT CAN BE SET UP IN REMOTE AREAS THAT HAVE NEVER BEFORE HAD ACCESS TO THE RESOURCES OF THE WORLD COMMUNITY. THE NETWORK CAN BE A LINK WITH EDUCATIONAL RESOURCES OF THE UNITED STATES, A QUICK MEANS OF RECEIVING URGENTLY NEEDED MEDICAL INFORMATION AND CONSULTATIONS, OR A SOURCE OF AGRICULTURAL AND ECONOMIC INFORMATION. IT CAN ALSO SERVE AS A CULTURAL CLEARING HOUSE LINKING THE PEOPLES OF THE PACIFIC VIA SATELLITE TO BUILD GREATER UNDERSTANDING, UNITY, AND PROGRESS.

UNIVERSITY OF DAYTON ACCESS NUMBER: 244

DATE OF DOCUMENT/TYPER: JUN 72 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF STATUS REPORTS FROM THE PROJECT DIRECTOR AND HIS ASSOCIATES ON THE ALASKA EXPERIMENT

AUTHOR: STATE OF ALASKA

SPONSORING AGENCY: STATE OF ALASKA

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: OCT 71 - JUN 72

OBJECT OF EXPERIMENT: EVALUATE EDUCATIONAL USES OF SATELLITE TELECOMMUNICATIONS IN REMOTE ALASKAN COMMUNITIES ACCORDING TO THE FOLLOWING OBJECTIVES:  
 (1) TO PROVIDE THE EMOTIONAL AND INTELLECTUAL SUPPORT NEEDED BY THE RURAL TEACHER BY PROVIDING PACED CONTACT WITH OTHER TEACHERS WITH ADMINISTRATION AND SUPPORT SERVICE AND WITH OTHER SOURCES OF EXPERTISE. (2) PROVIDE DIRECT CLASSROOM SUPPORT IN THE AREA OF LANGUAGE DEVELOPMENT. (3) BRIDGE THE CULTURAL GAP THAT EXISTS BETWEEN SCHOOL AND COMMUNITY. (4) PROVIDE INFORMATION TO NATIVE COMMUNITIES THAT WILL HELP THEM COPE WITH THE CHANGES IN THEIR LIVES. (5) AMELIORATE THE EFFECTS OF SEPARATION OF THE HOSPITALIZED CHILD FROM HIS HOME AND FAMILY. (6) SOLVE THE HEARING PROBLEMS OF THE CHILDREN OF RURAL ALASKA.

ABSTRACT: EXPERIMENT CONSISTS OF LECTURES ON VARIOUS SUBJECTS TO CLASSROOMS IN ALASKAN REMOTE VILLAGES, AND DISCUSSIONS BETWEEN GRATESCHOOL STUDENTS IN ALASKA AND CALIFORNIA. ALSO A DAILY PUBLIC RADIO NEWSCAST IS TRANSMITTED FROM WASHINGTON, D.C. (CONSTITUTING THE STATE'S ONLY NEAR-REAL-TIME NEWS SERVICE) TO THE VILLAGES AND TO A LOCAL FM STATION, KUAC. TWENTY-ONE REMOTE COMMUNITIES ARE INVOLVED (SEE MAP)--WHICH ARE THE SAME AS THOSE PARTICIPATING IN THE BIOMEDICAL COMMUNICATION EXPERIMENT.

SUBJECTS: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
 VOICE COMMUNICATIONS

KEYWORDS: ALASKA: ATS-1: EDUCATION: BIOMEDICAL  
 TECH: VIDEO LINK

UNIVERSITY OF DAYTON ACCESS NUMBER: 245

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DATE OF DOCUMENT/TYPE: JUN 72 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF CASE REPORTS FROM THE UNIVERSITIES OF WASHINGTON, WISCONSIN, AND STANFORD IN REGARD TO THE ALASKA EXPERIMENT

AUTHOR: STATE OF ALASKA

SPONSORING AGENCY: STATE OF ALASKA

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: OCT 72 - JUN 72

OBJECT OF EXPERIMENT: EVALUATE APPLICATION OF SATELLITES TO IMPROVE COMMUNICATION BETWEEN VILLAGE MEDICAL AIDES AND PATIENTS WITH CENTRALLY LOCATED DOCTORS AND HOSPITALS.

ABSTRACT: SMALL, INEXPENSIVE, PORTABLE GROUND STATIONS HAVE BEEN DEVELOPED AND ARE DEPLOYED AT ABOUT THE FIFTY-FIVE REMOTE VILLAGES IN THE ALASKAN WINTERLANDS. MOST OF THESE AREAS HAVE NO TELEPHONE SERVICE, AND NO RADIO COMMUNICATION IS CHANCEY AT BEST, WITH THE AURORAL AND ATMOSPHERIC CONDITIONS GENERALLY PREVAILING.

THE SATELLITE RECEIVING TERMINAL EQUIPMENT IS LOCATED IN THE VILLAGE MEDICAL AIDE WORK AREA. IN THE 2 VILLAGES IN THE TANANA REGION, THE EQUIPMENT IS TIME SHARED WITH THE SCHOOL TEACHER WHO HAS A REMOTE LINE FROM THE TERMINAL. ONE OF THE JOINT EDUCATIONAL/MEDICAL EXPERIMENTS INCLUDES THE EVALUATION OF SPECIALLY DESIGNED LISTENING EQUIPMENT FOR THE NATIVE ALASKAN CHILDREN WHO GENERALLY HAVE A SEVERE HEARING DISABILITY. A SECOND BUT EQUALLY IMPORTANT ASPECT OF THE HEALTH CARE EXPERIMENT BEING CONDUCTED BY THE NATIONAL LIBRARY OF MEDICINE'S LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS, IS THE USE OF SATELLITE CHANNELS TO TRANSFER MEDICAL SMALL GROUND FACILITIES. A GROUND STATION TERMINAL CAN BE ESTABLISHED ANYWHERE, WITH ITS MOBILE

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
VOICE COMMUNICATIONS

KEYWORDS: ALASKA; ATS-1; MEDICAL; DOCTORS

UNIVERSITY OF DAYTON ACCESS NUMBER: 246

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DATE OF DOCUMENT/TYPER: FEB 71 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF SCOMB-1, A SATELLITE COMMUNICATION OCEANOGRAPHIC AND METEOROLOGICAL BUOY

AUTHOR: HAGEN, TS JAMP, OS STPONE, JS SVERKHOLT, N

SPONSORING AGENCY: ROYAL NORWEGIAN COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH: OSLO, NORWAY

SATELLITE: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: DEC 70 - JAN 71

OBJECT OF EXPERIMENT: TEST THE USE OF VHF SATELLITE FACILITIES FOR DATA-GATHERING FROM OCEANOGRAPHIC BUOYS.

ABSTRACT: THE NORWEGIANS DEVELOPED SCOMB-1 TO EVALUATE THE POSSIBILITIES OF SATELLITE-RELAYED DATA TRANSMISSIONS FROM OCEAN PLATFORMS OPERATING AT HIGH LATITUDES. (BUOY DATA ARE IN A PCM FORMAT AND COMPRISE A SELECTION OF METEOROLOGICAL, BUOY ATTITUDE, HOUSEKEEPING AND POSITION INFORMATION.) OPERATIONAL TESTS WERE PERFORMED DURING DECEMBER 1970 AND JANUARY 1971, RELAYING DATA FROM THE BUOY THROUGH THE ATS-3 SPACECRAFT TO THE GROUND STATION IN OSLO. ATS-3 WAS THEN LOCATED AT 47 DEGREES WEST AND THE BUOY LOCATED NEAR BERGEN, NORWAY. AT THESE LOCATIONS, THE ELEVATION ANGLE OF THE SATELLITE FROM THE BUOY WAS APPROXIMATELY 9 DEGREES AND FROM THE GROUND STATION 7 DEGREES.

CONCLUSIONS: THE DISCUSSION AND CONCLUSIONS CONCERNING THE SATELLITE TESTS ARE BRIEF AND RELATIVELY UNINFORMATIVE. THERE ARE NO DATA ON ACTUAL VERSUS PREDICTED PERFORMANCE CHARACTERISTICS OR ON FADING AND MULTIPATH. THE REPORT NEARLY CONCLUDES THAT: "DURING THESE TESTS, DATA WERE SUCCESSFULLY TRANSMITTED FROM THE BUOY OUTSIDE BERGEN VIA THE SATELLITE OVER SOUTH AMERICA TO THE GROUND STATION IN OSLO. COMMAND TRANSMISSION IN THE OPPOSITE DIRECTION, HOWEVER, WAS FOUND TO BE TOO MARGINAL TO GIVE SATISFACTORY INTERPRETATION."

SUBJECT: DATA TRANSMISSION RELAY TRAFFIC CONTROL METEOROLOGY  
OCEANOGRAPHY

KEYWORDS: NORWAY: ATS-3: VHF: BUOYS: OCEANOGRAPHY: METEOROLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 267

DATE OF DOCUMENT/TITLE: OCT 68 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF NASA/ESSA HYDROLOGICAL COMMUNICATIONS EXPERIMENT

AUTHOR: NASA/ESSA

SPONSORING AGENCY: NASA/ESSA

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: AUG 67 - SEP 68

OBJECT OF EXPERIMENT: TO DETERMINE BY ACTUAL DEMONSTRATION THE ECONOMIC AND TECHNICAL FEASIBILITY OF COLLECTING HYDROLOGICAL DATA FROM RELATIVELY UNATTENDED REMOTE SITES AND TO DETERMINE REQUIRED PLATFORM CHARACTERISTICS

ABSTRACT: THE VHF TRANSponder OF ATS-1 WAS USED BETWEEN AUGUST 1967 AND SEPTEMBER 1968 TO COLLECT DATA FROM FOUR HYDROLOGIC PLATFORMS IN MARYLAND, ARKANSAS, CALIFORNIA, AND OREGON. SELECTION OF METEOROLOGICAL, BUOY ATTITUDE, HOUSEKEEPING AND POSI

CONCLUSION: THE FINAL EVALUATION OF THE EXPERIMENT SAYS ESSENTIALLY THAT THE EXPERIMENT ACCOMPLISHED ITS PRINCIPAL OBJECTIVES IN THAT THE STATIONS RESPONDED REGULARLY TO INTERROGATION AND REPORTED BACK USEFUL INFORMATION. EXPERIENCE GAINED DURING 10 MONTHS OPERATION PROVIDED MUCH USEFUL INFORMATION WHICH WILL BE OF INTEREST IN PLANNING OTHER SYSTEMS. PROBLEM AREAS INCLUDED INTERFERENCE TO THE LOW POWER EMISIONS FROM THE PLATFORMS, AND THE INDICATED NEED FOR A MORE SOPHISTICATED COMMAND AND INTERROGATION SYSTEM FOR AN OPERATIONAL CONFIGURATION.

SUBJECT: DATA TRANSMISSION HYDROLOGY

KEYWORDS: HYDROLOGY: ATS-1

UNIVERSITY OF DAYTON ACCESS NUMBER: 246

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DATE OF DOCUMENT/TYPE: MAY 67 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF PRECISE TIME TRANSFERS TO REMOTE LOCATIONS VIA VHF SATELLITE TRANSPONDER

AUTHOR: COAST AND GEODETIC SURVEY

SPONSORING AGENCY: COAST AND GEODETIC SURVEY

SATELLITE: ATS-1 COMMUNICATIONS: VHF EXPERIMENT PERIOD: APR 67

OBJECT OF EXPERIMENT: EVALUATE USE OF VHF SATELLITE TRANSPONDERS FOR PRECISE TIME SYNCHRONIZATION OVER LONG DISTANCES.

ABSTRACT: IN THIS EXPERIMENT, THE ATS VHF TRANSPONDER WAS USED WITH TERMINAL EQUIPMENT DEVELOPED JOINTLY BY NRS AND CGS TO YIELD A TIME TRANSFER ACCURACY OF 10 MICROSECONDS OR LESS.

CONCLUSIONS: THE REPORT CONCLUDES, AMONG OTHER THINGS, THAT: "IN THE PROCESS OF CHECKING THE ACCURACY OF THE CESIUM CLOCK AT MOJAVE ATS, IT WAS FOUND THAT TRANSFERS OF UNEXPECTED ACCURACY AND PRECISION WERE ACHIEVABLE. DURING APRIL 1967 EXPERIMENTS, A PRECISION OF  $\pm$  OR  $\pm 0.3$  MICROSECONDS WAS ACHIEVED MAKING THIS SYSTEM VIRTUALLY AT THE STATE-OF-THE-ART FOR PRECISE TIMING."

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-1 TIME DISSEMINATION; TIME TRANSFER; CESIUM CLOCK

UNIVERSITY OF DAYTON ACCESS NUMBER: 249

DATE OF DOCUMENT/TYPE: OCT 71 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF NBS FREQUENCY AND TIME SATELLITE EXPERIMENT

AUTHOR: MANSCH, D W; HAMILTON, W F; GATTERER, L E

SPONSORING AGENCY: NATIONAL BUREAU OF STANDARDS

SATELLITE: ATS-3 COMMUNICATIONS: VHF: UHF

EXPERIMENT PERIOD: AUG 71 - OCT 71

OBJECT OF EXPERIMENT: EVALUATE USE OF SATELLITES AND VHF AND UHF FOR BROADCAST OF NBS TIME AND FREQUENCY DATA.

ABSTRACT: NBS HAS TRANSFERRED STANDARD FREQUENCY AND TIME BY SATELLITES SINCE 1967. ALL EXPERIMENTS UTILIZED GEOSTATIONARY SATELLITES OPERATING AT VHF AND UHF. CURRENTLY, NBS IS EMPLOYING THE ATS-3 TWICE DAILY TO BROADCAST A TIME AND FREQUENCY FORMAT SIMILAR TO THAT BROADCAST BY WWV AND WWVH. NBS HAS PROMOTED THIS EXPERIMENT TO THE GENERAL TIMING PUBLIC IN SEVERAL WAYS. FOR EXAMPLE, NBS HAS TEST INPUTED MORE THAN 6,000 BROCHURES TO DATE (JANUARY 1972). NBS HAS ALSO PROVIDED TO USERS A SPECIALLY DESIGNED FLIP RULE WITH WHICH THE USER CAN DETERMINE THE SLANT RANGE OF THE SATELLITE MORE ACCURATELY AND THUS ACHIEVE 25 TO 50 MICROSECOND TIMING ACCURACY.

SUBJECT: DATA TRANSMISSION

KEYWORDS: VHF: ATS-3: NATIONAL BUREAU OF STANDARDS: TIME DISSEMINATION: FREQUENCY

UNIVERSITY OF DAYTON ACCESS NUMBER: 250

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DATE OF DOCUMENT/TYPER: APR 69 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF AN EXPERIMENT WITH VHF SATELLITE AND HF-SSE COMMUNICATIONS FOR DATA COLLECTION FROM OCEAN DATA STATIONS (RUCYS)

AUTHOR: GENERAL DYNAMICS CONVAIR

SPONSORING AGENCY: GENERAL DYNAMICS CONVAIR

SATELLITE: ATS-1 COMMUNICATIONS: VHF: HF-SSE EXPERIMENT PERIOD: APR 69

OBJECT OF EXPERIMENT: INVESTIGATE USE OF A SATELLITE VHF TRANSPONDER FOR DATA COLLECTION

ABSTRACT: GENERAL DYNAMICS CONVAIR IN COOPERATION WITH THE COAST GUARD PERFORMED EXPERIMENTS USING ATS-1 FOR DATA COLLECTION FROM ONE OCEAN DATA STATION "ALPHA". THE RUCY WAS LOCATED AT ABOUT 160 DEGREES WEST BY 45 DEGREES NORTH IN THE PACIFIC. CONVAIR CONCLUSIONS AND RECOMMENDATIONS SHOULD BE OF INTEREST TO THOSE CURRENTLY PLANNING SATELLITE DATA COLLECTION SYSTEMS FROM RUCYS AND OTHER PLATFORMS. THE FOLLOWING EXCERPTS ARE TYPICAL: "THE EXPERIMENT WAS HIGHLY SUCCESSFUL, ALTHOUGH THE TRANSMISSION RELIABILITY HAS BEEN LESS THAN THE VALUE DESIRABLE FOR AN OPERATIONAL SYSTEM." "THE CAUSE FOR MANY OF THE UNSUCCESSFUL COMMUNICATIONS ATTEMPTS, AS WELL AS FOR MANY OF THE REVERSE, WAS THE GREATER THAN ANTICIPATED FADING."

SUBJECT: DATA TRANSMISSION OCEANOGRAPHY

KEYWORDS: RUCYS: ATS-1: VHF: OCEANOGRAPHY: COAST GUARD

UNIVERSITY OF DAYTON ACCESS NUMBER: 251

DATE OF DOCUMENT/TYPER: 1972 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE SATELLITE RADIO AND HEALTH IN THE VILLAGES: RESULTS OF A QUESTIONNAIRE FOR HEALTH AIDES

AUTHOR: HUDSON, HEATHER

SPONSORING AGENCY: LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATION, BETHESDA, MARYLAND 20814

SATELLITE: ATS-1 COMMUNICATIONS: AIDE EXPERIMENT PERIOD: 1971 - 1972

OBJECT OF EXPERIMENT: TO PROBE FOR POTENTIAL EFFECTS OF IMPROVED COMMUNICATION ON VILLAGE HEALTH CARE

ABSTRACT: A QUESTIONNAIRE SENT TO 8 VILLAGES INVOLVED WITH SATELLITE RADIO AND 5 THAT WERE NOT. THE RESPONSES TO THE QUESTIONNAIRE ARE INCLUDED ALONG WITH COMMENTS BY THE AUTHOR. RESULTS ARE SOMEWHAT INCONCLUSIVE BECAUSE OF THE SMALL SAMPLE AND NO PRETESTING. INCLUDED IS A REPORT ON A VISIT TO ALASKA BY STEPHEN BERENSON.

CONCLUSION: DAILY COMMUNICATION WITH THE DOCTOR HAS MADE A SIGNIFICANT IMPACT ON SEVERAL ASPECTS OF HEALTH CARE. THE NUMBER OF EXAMINATIONS REQUESTED SEEMED TO HAVE BEEN REDUCED.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1 SATELLITE RADIO; ALASKA; MEDICAL COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 252

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DATE OF DOCUMENT/TYPER: JUN 70 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF L-BAND ATS-5--ORION--SS MANHATTAN MARINE NAVIGATION AND COMMUNICATION EXPERIMENT, A REPORT BY AII TO NASA ELECTRONIC RESEARCH CENTER UNDER CONTRACT NAS 12-2260

AUTHOR: HANES, C J

SPONSORING AGENCY: APPLIED INFORMATION INDUSTRIES, MORRISTOWN, NEW JERSEY

SATELLITE: ATS-5

COMMUNICATIONS: L-BAND

EXPERIMENT PERIOD: APR 70

ABSTRACT:

THIS EXPERIMENT EMPLOYED THE L-BAND TRANSPONDER IN ATS-5 IN CONJUNCTION WITH A FIXED RECEIVING STATION AT MORRISTOWN, NEW JERSEY AND A MARITIME MOBILE STATION ABOARD THE SS MANHATTAN. THE EXPERIMENT WAS CONDUCTED DURING APRIL 1970 WHILE THE MANHATTAN WAS ENROUTE FROM NEWPORT NEWS, VIRGINIA TO THULE, GREENLAND. RANGING AND DATA TRANSMISSION WERE ACCOMPLISHED USING THE ORION SYSTEM DEVELOPED BY AII. THIS SYSTEM EMPLOYS BIPHASE PSK MODULATION OF THREE TONES FOR RANGING, WITH SUPERIMPOSED DATA INFORMATION.

SUBJECT: AIRCRAFT COMMUNICATIONS MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: L-BAND; ATS-5; ORION; SS MANHATTAN; MARINE NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 258

DATE OF DOCUMENT/TYPER: MAY 71

/ TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF FINAL REPORT ON PHASES 1 AND 2 VHF RANGING AND POSITION FIXING EXPERIMENT USING 6 ATS SATELLITES.

AUTHOR: ANDERSON, R E

SPONSORING AGENCY: GENERAL ELECTRIC COMPANY

SATELLITES: ATS-1; ATS-3 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: 25 NOV 68 - 1 MAY 71

OBJECT OF EXPERIMENT: TO EVALUATE ACCURACY OF RANGING AND POSITION-FIXING USING A GEOSTATIONARY SATELLITE AT VHF

ABSTRACT:

AN INTERROGATION SIGNAL WAS TRANSMITTED FROM A GROUND TERMINAL TO ATS-3, WHICH RELAYED IT TO THE VEHICLE TRANSPONDERS. THE VEHICLE THAT WAS ADDRESSED REPEATED THE SIGNAL AND ITS RESPONSE WAS RELAYED BACK THROUGH BOTH ATS-1 AND ATS-3 TO THE GROUND TERMINAL, WHERE PROPAGATION TIMES WERE MEASURED. LINE-OF-POSITION AND FIXES WERE COMPUTED. SEVEN VEHICLES WERE USED IN THE TEST: THREE AIRCRAFT, TWO SHIPS, AN OCEANOGRAPHIC BUOY, AND A TRUCK. IONOSPHERIC AND MULTI-PATH EFFECTS WERE STUDIED.

SUBJECT: AIRCRAFT COMMUNICATIONS MARITIME TRAFFIC CONTROL

KEYWORDS: ATS-1; ATS-3; VHF; RANGING; POSITION FIXING; AIRCRAFT; SHIPS; TRUCKS

UNIVERSITY OF DAYTON ACCESS NUMBER: 259

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DATE OF DOCUMENT/TITLE: JUN 71 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF STUDY TO IMPROVE MARINE TRANSPORTATION THROUGH AEROSPACE ELECTRONICS

AUTHOR: US DEPARTMENT OF COMMERCE

SPONSORING AGENCY: APPLIED INFORMATION INDUSTRIES, MORRISTOWN, NEW JERSEY

SATELLITE: ATS-1 COMMUNICATIONS: L-BAND

EXPERIMENT PERIOD: SEP 70 - MAY 71

OBJECT OF EXPERIMENT: TO STUDY IMPROVEMENTS IN MARINE TRANSPORTATION THROUGH ATS TECHNOLOGY

ABSTRACT:

FOUR AREAS OF STUDY WERE COVERED: 1. ECONOMIC BENEFITS OF A MARINE SATELLITE-AIDED NAVIGATION/COMMUNICATION SYSTEM; 2. DEFINITION OF A SATELLITE-AIDED NAVIGATION/COMMUNICATIONS SYSTEM; (A) EXPERIMENTAL; (B) OPERATIONAL; 3. A DEMONSTRATION OF MARINE DATA COMMUNICATIONS VIA SATELLITE TO A SHIP AT SEA; 4. DEFINITION OF INTEGRATED SHIPBOARD ELECTRONICS THROUGH MULTIPLEXING. APPROXIMATELY 30 MLY. THE TOTAL DEMONSTRATION PROGRAM SPANNED A PERIOD OF 9 MONTHS FROM SEPTEMBER 1970 TO MAY 1971. ACTUAL TESTS AT L-BAND WERE CONDUCTED BETWEEN THE HOJAVE ATS GROUND STATION AND THE TANKER ESSO GA LIMPONE BETWEEN FEBRUARY 21 AND MARCH 10, 1971. DURING A TIME SPAN OF 25 TEST HOURS A TOTAL OF OVER 3 MILLION BITS OF DATA WERE HANDLED. THE HOURLY TRANSMISSION RATE EXCEEDED 130,000 BITS. THE AVERAGE PROBABILITY OF BIT ERROR OF ALL TRANSMISSIONS WAS DETERMINED TO BE 0.003. THIS CORRESPONDS TO A SIGNAL TO NOISE RATIO OF BETWEEN 7 AND 9 DB.

SUBJECT: AIRCRAFT COMMUNICATIONS DATA TRANSMISSION MARITIME TRAFFIC CONTROL  
NAVIGATION

KEYWORDS: L-BAND; ATS-1; MARITIME COMMUNICATIONS; NAVIGATION; SHIPS; DATA TRANSMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 260

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DATE OF DOCUMENT/TYPE: FEB 71 / TECHNICAL MEMORANDUM  
 TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF SYSTEM 6210/ATS-5 SIGNAL DEMONSTRATION TEST, FINAL TECHNICAL REPORT  
 AUTHOR: BARNULA, J D; WESTINGHO, D M; HANAS, D J  
 SPONSORING AGENCY: APPLIED INFORMATION INDUSTRIES  
 SATELLITE: ATS-5 COMMUNICATIONS: C-BAND; L-BAND EXPERIMENT PERIOD: OCT 70 - JAN 71  
 OBJECT OF EXPERIMENT: TO DETERMINE THE IONOSPHERE AND ATMOSPHERE DEPENDENT DELAYS VERSUS FREQUENCY AS OPPOSED TO THE "FIXED" DELAYS DUE TO EQUIPMENT, AND BASIC TRANSMISSION DELAY  
 ABSTRACT: L- AND C-BAND RANGE MEASUREMENTS WERE MADE BETWEEN MOJAVE, CALIFORNIA AND THE ATS-5 SATELLITE BETWEEN OCTOBER, 1970 AND JANUARY, 1971 TO EVALUATE IONOSPHERIC PROPAGATION EFFECTS AT L-BAND FREQUENCIES.  
 SUBJECT: DATA TRANSMISSION METEOROLOGY  
 KEYWORDS: ATS-5; L-BAND; C-BAND; IONOSPHERIC PROPAGATION; SAMS; IONOSPHERE  
 TECHNICAL REPORT NUMBER: SAMS TR 71-35 UNIVERSITY OF DAYTON ACCESS NUMBER: 261

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DATE OF DOCUMENT/TITLE: AUG 71 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF PROGNOSTICATION OF IONOSPHERIC ELECTRON CONTENT

AUTHOR: STANFORD UNIVERSITY

SPONSORING AGENCY: STANFORD UNIVERSITY

SATELLITE: ATS-6 COMMUNICATIONS: C-BAND, L-BAND EXPERIMENT PERIOD: APR 71 - JUL 71

OBJECT OF EXPERIMENT: TWO METHODS ARE PROPOSED FOR PROGNOSTICATION OF THE IONOSPHERIC ELECTRON CONTENT TO BE USED IN THE CORRECTION OF RANGING MEASUREMENTS MADE BY THE USERS OF SYSTEM 6218

ABSTRACT: ONE METHOD IS BASED ON THE GENERATION OF COEFFICIENTS OF ELECTRON CONTENT EXPANSION AS A FUNCTION OF THE TIME OF DAY, THE DAY OF THE YEAR AND OF AN INDEX OF SOLAR ACTIVITY. THIS EXPANSION PERMITS THE ESTIMATION OF THE ELECTRON CONTENT AT A GIVEN NUMBER OF REFERENCE LOCATIONS. THE ELECTRON CONTENT AT ANOTHER LOCATION IS OBTAINED BY MEANS OF A GEOGRAPHICAL EXTRAPOLATION. THE SECOND METHOD, AN EXTENSION OF THE FIRST, ATTEMPTS TO IMPROVE THE PROGNOSTICATED VALUES BY AN UPDATING TECHNIQUE WHICH USES REAL TIME MEASUREMENTS OF ELECTRON CONTENT MADE AT SOME CONVENIENT LOCATION.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-6; 6218; IONOSPHERE; ELECTRON CONTENT; RANGING

TECHNICAL REPORT NUMBER: SASEC TR 71-92 UNIVERSITY OF DAYTON ACCESS NUMBER: 262

DATE OF DOCUMENT/TITLE: OCT 71 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY STUDY OF PRECISE POSITIONING AT L-BAND USING COMMUNICATIONS SATELLITES

AUTHOR: APPLIED INFORMATION INDUSTRIES (AII)

SPONSORING AGENCY: APPLIED INFORMATION INDUSTRIES

SATELLITE: ATS-5 COMMUNICATIONS: C-BAND, L-BAND EXPERIMENT PERIOD: JULY 71

OBJECT OF EXPERIMENT: A STUDY AT WILLIAMSTOWN, MASSACHUSETTS, IN AUGUST 1969, JOINTLY SPONSORED BY THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AND BY THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY RECOMMENDED DEVELOPMENT OF NAVIGATION SYSTEMS CAPABLE OF ECONOMICALLY DETERMINING SHIP VELOCITIES TO PLUS OR MINUS 5 CM/S FOR OVER SEVERAL-MINUTE TIME AVERAGES AND SHIP POSITIONS TO PLUS OR MINUS 100 M AT THE SAME TIME, PLUS FREE INSTRUMENT FLOAT LOCATIONS WITH PLUS OR MINUS 2 KM ACCURACY AT INTERVALS OF ABOUT 5 DAYS TO OBTAIN BETTER KNOWLEDGE OF CURRENT PATTERNS AND DIFFUSION RATES. NASA WOLLOPS STATION DEFINED A PROGRAM FOR STUDY WHICH WAS PERFORMED UNDER CONTRACT BY APPLIED INFORMATION INDUSTRIES, USING UNIQUE PROPRIETARY EQUIPMENT.

ABSTRACT: THE TEST CONFIGURATION ILLUSTRATED IN FIGURE 2-2 WAS IMPLEMENTED AT THE WOLLOPS FACILITY AS SHOWN ON THE SIMPLIFIED SITE MAP OF FIGURE 2-3. THE FIXED RECEIVING SITE WAS LOCATED ACCORDING TO A FIRST-ORDER SURVEY AND THE RANGE TO THE SATELLITE MEASURED BY THE FIXED RECEIVER AND THE REMOTE RECEIVER. THE GEOMETRY IS SUCH THAT BY KNOWING THE LOCATION OF THE FIXED RECEIVER AND THE PRECISE SATELLITE POSITION AS A FUNCTION OF TIME AND BY MEASURING THE RANGES FROM THE SATELLITE TO THE TWO RECEIVERS, THE LINE OF POSITION CONTAINING THE REMOTE RECEIVER CAN BE CALCULATED. THIS LINE OF POSITION CAN THEN BE DETERMINED THE PRECISION AND REPEATABILITY OF THE SYSTEM.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: POSITION FIXING: L-BAND: C-BAND: SHIPS: ATS-5: WOLLOPS ISLAND

UNIVERSITY OF DAYTON ACCESS NUMBER: 263

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DATE OF DOCUMENT/TYPES: FEB 71 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF RESULTS OF MARITIME SATELLITE COMMUNICATIONS TESTS USING THE ATS-3

AUTHOR: NETHERLANDS POSTAL AND TELECOMMUNICATIONS SERVICES

SPONSORING AGENCY: NETHERLANDS POSTAL AND TELECOMMUNICATIONS SERVICES

SATELLITE: ATS-3 COMMUNICATIONS: VHF, VHF-FM

OBJECT OF EXPERIMENT: TO EVALUATE UTILITY OF VHF SATELLITE TRANSPONDER FOR MARINE COMMUNICATIONS

ABSTRACT: VHF COMMUNICATIONS TESTS USING THE ATS-3 SATELLITE TOOK PLACE BETWEEN AUGUST 1970 AND FEBRUARY 1971 USING THE S. S. NIEUW AMSTERDAM AND THE S. S. ATLANTIC CROWN. THE NASA MOJAVE EARTH STATION, AND A NEW EXPERIMENTAL EARTH STATION IN THE NETHERLANDS (KOOTWIJK). THE NIEUW AMSTERDAM WAS OPERATING BETWEEN AMSTERDAM AND NEW YORK, AND NEW YORK AND THE CARIBBEAN AREA; WHILE THE ATLANTIC CROWN WAS OPERATING BETWEEN AMSTERDAM AND NEW YORK. MEASUREMENTS WERE MADE OF PERFORMANCE CHARACTERISTICS OF RADIO TELETYPE (MULTICHANNEL FSK) VOICE, SELECTIVE CALLING AND FACSIMILE TRANSMISSIONS (NARROWBAND FM AND SSB) BETWEEN AN EARTH STATION AND A SHIP, AND VICE VERSA.

CONCLUSION: THE DUTCH CONCLUDED THAT THE TESTS CONFIRMED THE CONCLUSION OF EARLIER TESTS HELD ELSEWHERE THAT, USING FM, VERY RELIABLE COMMUNICATIONS CAN BE ESTABLISHED WITH SHIPS AT SEA VIA A VHF SATELLITE. THEY ALSO CONCLUDED THAT SATISFACTORY RESULTS CAN ALSO BE OBTAINED WITH NARROWBAND MODULATION TECHNIQUE. PARTICULARLY TRANSMISSION OF SELECTIVE CALLING AND FACSIMILE SIGNALS WITH SSB MODULATION. LIMITED TELEGRAPHY TESTS USING FSK WITH SHIFTS OF 85 AND 170 HZ INDICATED THAT SATISFACTORY RESULTS ARE TO BE EXPECTED ESPECIALLY WITH 170 HZ SHIFT.

SUBJECT: AIRPORT COMMUNICATIONS DATA TRANSMISSION MARITIME TRAFFIC CONTROL  
NAVIGATION VOICE COMMUNICATIONS

KEYWORDS: NETHERLANDS: ATS-3; SS ATLANTIC CROWN; SS NIEUW NETHERLANDS; MARITIME COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 266

DATE OF DOCUMENT/TYPER: DEC 78 / TECHNICAL REPORT

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF UNITED KINGDOM MARITIME SATELLITE COMMUNICATION TESTS

AUTHOR: THE POST OFFICE (UNITED KINGDOM)

SPONSORING AGENCY: THE POST OFFICE (UNITED KINGDOM), UNIVERSITY COLLEGE OF SWANSEA, MARCONI COMPANY

SATELLITE: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: AUG 78 - DEC 78

OBJECT OF EXPERIMENT: EVALUATE APPLICATION OF VHF SATELLITE TRANSPONDER TO MARINE COMMUNICATIONS.

ABSTRACT: THE VHF TRANSPONDER OF THE ATS-3 SATELLITE WAS USED FOR TESTS OF SPEECH, TELEPRINTER, FACSIMILE AND SELECTIVE CALLING BETWEEN THE CONTAINER VESSEL ATLANTIC CAUSEWAY AND THE POST OFFICE COAST RADIO STATION AT BERNHAM-ON-SEA, ENGLAND.

SUBJECT: DATA TRANSMISSION MARITIME TRAFFIC CONTROL NAVIGATION  
VOICE COMMUNICATIONS

KEYWORDS: ATS-3; VHF; MARITIME COMMUNICATIONS; UNITED KINGDOM

UNIVERSITY OF DAYTON ACCESS NUMBER: 265

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DATE OF DOCUMENT/TITLE: FEB 68 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF REPORT ON TESTS OF CHIRP MODULATED DATA TRANSMISSION FROM GROUND TO AIRCRAFT VIA SATELLITE ATS-3

AUTHOR: ROYAL AIRCRAFT ESTABLISHMENT

SPONSORING AGENCY: ROYAL AIRCRAFT ESTABLISHMENT, CANADA

SATELLITE: ATS-3

COMMUNICATIONS: VHF

EXPERIMENT PERIOD: FEB 69

OBJECT OF EXPERIMENT: EVALUATE SPECIAL TECHNIQUES TO IMPROVE EFFECTIVENESS OF VHF SATELLITE FOR COMMUNICATIONS WITH AIRCRAFT

ABSTRACT:

CHIRP MODULATION HAS BEEN PROPOSED TO COMBAT MULTIPATH AND DOPPLER EFFECTS ON RADIO LINKS BETWEEN AIRCRAFT AND SYNCHRONOUS SATELLITES. THIS EXPERIMENT WAS DESIGNED TO TEST THE USE OF SUCH A SYSTEM.

A DATA LINK AT 1200 BITS/S USING CHIRP MODULATION WITH A FREQUENCY SWEEP OF 40 KHZ WAS TESTED ON VHF FROM A GROUND MOBILE STATION AT COVE TO A COMET AIRCRAFT VIA THE SATELLITE ATS-3. THE AIRCRAFT ANTENNA WAS A VERTICAL WHIP AND SO THE AVERAGE RECEIVED SIGNAL LEVEL WAS REDUCED AS A RESULT OF FREQUENCY ROTATION OF THE LINEARLY POLARIZED SIGNAL RADIATED BY THE SATELLITE.

SUBJECT: AIRCRAFT COMMUNICATIONS

KEYWORDS: CHIRP MODULATION; ATS-3; CANADA; ROYAL AIRCRAFT ESTABLISHMENT

UNIVERSITY OF DAYTON ACCESS NUMBER: 265

DATE OF DOCUMENT/TYPE: FEB 69

/ TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF TECHNICAL DATA REPORT ON THE ATS PROGRAM

SUT-CR: US COAST GUARD

SPONSORING AGENCY: US COAST GUARD

SATELLITES: ATS-1; ATS-3 COMMUNICATIONS: VHF

EXPERIMENT PERIOD: OCT 67 - JAN 69

ABSTRACT: THE TESTS SPANNED THE PERIOD OCTOBER 1967 TO JANUARY 1969 (THESE REPORTS MENTION STILL EARLIER TESTS WITH THE CG CUTTERS KLANATH AND STATAN ISLAND DURING 1967 BUT NO REPORT ON THESE TESTS HAS BEEN FOUND).

IN AUGUST AND SEPTEMBER 1968 THE CUTTER CASCO CONDUCTED COMMUNICATIONS AND RANGING TESTS WITH SHORE STATIONS AND SHIP TO SHIP TESTS WITH ANOTHER VESSEL (USS JOSEPH VS. DANIELS) OFF THE SOUTHERN TIP OF SOUTH AMERICA. THE CASCO WAS LOCATED AT OCFAN STATION DELTA, APPROXIMATELY 56 DEGREES NORTH 51 DEGREES WEST AT WHICH POINT THE SATELLITE ELEVATION ANGLE WAS ABOUT 25 DEGREES.

A SECOND SERIES OF TESTS TOOK PLACE WITH THE CASCO BETWEEN OCTOBER 1969 AND JANUARY 1969. DURING THIS TEST THE CASCO ALSO ESTABLISHED COMMUNICATION WITH THE FLIGHT 600 WHILE IT WAS CROSSING THE NORTH ATLANTIC. COMMUNICATION QUALITY WAS PEACABLE BUT NOT GOOD.

SUBJECT: "FIXIT" TRAFFIC CONTROL NAVIGATION

KEYWORDS: COAST GUARD; ATS-1; ATS-3; VHF; COMMUNICATIONS; SHIPS; SHIP TO SHORE; RANGING; STATAN ISLAND

UNIVERSITY OF DAYTON ACCESS NUMBER: 267

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DATE OF DOCUMENT/TYPE: JUL 68 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: EXECUTIVE SUMMARY OF FINAL REPORT ON MARITIME MOBILE SATELLITE COMMUNICATIONS TESTS PERFORMED ON SS SANTA LUCIA

AUTHOR: MARITIME ADMINISTRATION, WESTINGHOUSE ELECTRIC CORPORATION

SPONSORING AGENCY: WESTINGHOUSE ELECTRIC CORPORATION

SATELLITE: ATS-1: ATS-3 COMMUNICATIONS: VHF EXPERIMENT PERIOD: FEB 68 - JUN 68

OBJECT OF EXPERIMENT: EVALUATE THE APPLICATION OF VHF SATELLITE TRANSPONDERS TO MARINE COMMUNICATION.

ABSTRACT: PROPAGATION, VOICE, DIGITAL DATA, TIME SYNCHRONIZATION AND RANGING TESTS WERE CONDUCTED USING THE VHF TRANSPONDERS ABOARD ATS-1 AND ATS-3 DURING TWO TEST VOYAGES OF THE SS SANTA LUCIA FROM PORT NEWA RK, N. J. THROUGH PANAMA CANAL TO VALPORIZO, CHILI AND RETURN, BETWEEN FEBRUARY AND JUNE 1968.

SUBJECT: MARITIME TRAFFIC APPLICATIONS NAVIGATION VOICE COMMUNICATIONS

KEYWORDS: ATS-1: ATS-3: VHF: MARITIME COMMUNICATION: SS SANTA LUCIA: MOBILE COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 268

DATE OF DOCUMENT/TYPE: DECEMBER 1972 / CORRESPONDENCE

TITLE OF DOCUMENT: CORRESPONDENCE

AUTHOR: STANLEY, G.

SPONSORING AGENCY: GEOPHYSICAL INSTITUTE, UNIVERSITY OF ALASKA

SATELLITE: ATS-1

EXPERIMENT PERIOD: DEC 1972

ABSTRACT: CORRESPONDENCE TO NASA DESCRIBING SEVERAL EMERGENCIES IN WHICH ATS-1 WAS USED TO OBTAIN MEDICAL ADVICE FROM DOCTORS AT TANANA.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; COMMUNICATIONS; BIOMEDICAL

UNIVERSITY OF DAYTON ACCESS NUMBER: 269

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DATE OF DOCUMENT/TYPE: APR-JUN 1972 / PROGRESS REPORT

TITLE OF DOCUMENT: MONTHLY PROGRESS REPORTS FOR ALASKA SATELLITE COMMUNICATIONS PROJECT.

AUTHOR: DR ROSA. A.V.

SPONSORING AGENCY: STANFORD UNIVERSITY, STANFORD, CALIFORNIA

SATELLITE: ATS-1

ABSTRACT: PROGRESS REPORTS FROM APRIL, MAY AND JUNE 1972 DESCRIBING STANFORD'S PARTICIPATION IN THE ALASKA EXPERIMENT. PROGRESS IS REPORTED ON USE OF THE MEDLINE COMPUTER, DEVELOPMENT OF TELETYPE TERMINAL EQUIPMENT AND CONSTRUCTION OF A CATALOG OF MEDICAL EXPERIMENTS.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; MEDICAL COMMUNICATIONS; ALASKA; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 270

DATE OF DOCUMENT/TYPE: 1972 / TECHNICAL MEMORANDUM  
TITLE OF DOCUMENT: SATELLITE TRANSMISSION OF LOW-COST ECG SIGNALS  
AUTHOR: ANDERSON, C.  
SPONSORING AGENCY: UNIVERSITY OF WASHINGTON

SATELLITE: ATS-1

EXPERIMENT PERIOD: JUN 1972

OBJECT OF EXPERIMENT: TO DETERMINE IF IT IS POSSIBLE TO TRANSMIT A TONE WITHOUT EXCESSIVE SIGNAL NOISE.  
TO DETERMINE IF ACCEPTABLE TRANSMISSION CAN BE ACCOMPLISHED WITH SATELLITE AT HALF POWER.

ABSTRACT: A PROJECT IS DESCRIBED IN WHICH PACEMAKER PATIENTS WERE GIVEN ECG TESTS. THE SIGNAL WAS AMPLIFIED AND SENT BY SATELLITE TO SEATTLE, WASHINGTON. EQUIPMENT AND PROCEDURE ARE DESCRIBED. A DISCUSSION OF THE ACCEPTANCE OF THE EXPERIMENT BY HEALTH AIDES AND PATIENTS IS ALSO INCLUDED. SAMPLES OF TRANSMITTED ECG RECORDINGS ARE GIVEN.

CONCLUSION: HALF OF THE ECG'S THAT WERE TRANSMITTED WERE JUDGED TO BE ACCEPTABLE FOR EVALUATION OF PACEMAKER OPERATION.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; ALASKA; PACEMAKER

UNIVERSITY OF DAYTON ACCESS NUMBER: 271

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ORIGINAL PAGE 1  
OF FOUR QUARTERS

DATE OF DOCUMENT/TYPE: APR-JUN 1972 / PROGRESS REPORT  
TITLE OF DOCUMENT: REPORT ON ALASKA BIOMEDICAL SATELLITE COMMUNICATIONS PROJECT  
AUTHOR: BEATTIE, R.A.  
SPONSORING AGENCY: LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATION, BETHESDA, MARYLAND  
SATELLITE: ATS-1 EXPERIMENT PERIOD: APR-JUN 1972  
OBJECT OF EXPERIMENT: EVALUATE THE EFFECTIVENESS OF SATELLITE COMMUNICATIONS FOR MEDICAL ASSISTANCE IN ALASKA'S RURAL COUNTRY  
ABSTRACT: THIS REPORT IS A NARRATIVE OF THE AUTHOR'S EXPERIENCES IN TRAVELLING THROUGH THE VILLAGES WHERE SATELLITE COMMUNICATIONS EXPERIMENTS WERE BEING CONDUCTED. THE AUTHOR GIVES HIS OPINIONS ON SUCH THINGS AS VILLAGE LIFE, NATIVE DIET, AND USE OF SATELLITE  
SUBJECT: MEDICAL/HEALTH APPLICATIONS  
KEYWORDS: ATS-1; SATELLITE; BIOMEDICAL; COMMUNICATIONS; ALASKA; HEALTH

UNIVERSITY OF DAYTON ACCESS NUMBER: 273

DATE OF DOCUMENT/TYPE: AUG 1973 / TECHNICAL REPORT

TITLE OF DOCUMENT: TESTS OF SYSTEMS FOR MEDICAL COMMUNICATIONS VIA ATS-1

AUTHOR: WILLARD, H.R.

SPONSORING AGENCY: UNIVERSITY OF WASHINGTON, DEPARTMENT OF ELECTRICAL ENGINEERING, SEATTLE, WASHINGTON

SATELLITE: ATS-1 EXPERIMENT PERIOD: 1972-73

OBJECT OF EXPERIMENT: EVALUATION OF DIRECT CARRIER SHIFT TECHNIQUES FOR DIGITAL DATA TRANSMISSION AND DESIGN, CONSTRUCTION AND INSTALLATION OF A SATELLITE CHANNEL COMPATIBLE ECG SCREENER SYSTEM.

ABSTRACT: THIS REPORT DESCRIBES THE EVALUATION OF DIRECT CARRIER SHIFT TECHNIQUES FOR TRANSMITTING DIGITAL DATA. SYSTEM PERFORMANCE IS DESCRIBED. A CONCLUSION SUMMARIZES THE TEST RESULTS. EXAMPLES OF TRANSMITTED DATA ARE GIVEN. ALSO, DISCUSSED IS THE DESIGN, CONSTRUCTION AND INSTALLATION OF A SATELLITE CHANNEL COMPATIBLE ECG SCREENER SYSTEM.

CONCLUSION: HIGHLY RELIABLE DIGITAL COMMUNICATIONS ARE POSSIBLE WITH NOISY SATELLITE CHANNELS USING DIRECT CARRIER SHIFTS. SATELLITE COMPATIBLE ECG SYSTEMS WERE INSTALLED FOR THE ANCHORAGE ALASKAN NATIVE HEALTH SERVICE HOSPITAL.

SUBJECT: DATA TRANSMISSION MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; CARRIER SHIFT; ALASKA; CARDIAC SCREENER

UNIVERSITY OF DAYTON ACCESS NUMBER: 274

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DATE OF DOCUMENT/TYPE: FEB-JUL 1972 /  
TITLE OF DOCUMENT: MONTHLY PROGRESS REPORTS ON SATELLITE PROJECT  
AUTHOR: REYNOLDS, D.K.; YARNELL, S.R.  
SPONSORING AGENCY: UNIVERSITY OF WASHINGTON, DEPT. OF ELECTRICAL ENGINEERING, SEATTLE, WASHINGTON  
SATELLITE: ATS-1 EXPERIMENT PERIOD: FEB-JUL 1972  
OBJECT OF EXPERIMENT: EVALUATION OF DIRECT CARRIER SHIFT TECHNIQUES FOR DIGITAL TRANSMISSION OF DATA AND DESIGN, CONSTRUCTION AND INSTALLATION OF AN ECG SCREENER SYSTEM.  
ABSTRACT: PROGRESS ON THE TELETYPE TESTS AND THE DEVELOPMENT OF THE ECG SCREENER IS REPORTED FOR A 6 MONTH PERIOD. COMMENTS ARE MADE ABOUT MEDLINE AND ACID-BASE PROGRAMS. A REPORT ON SOME ALASKAN PACEMAKER PATIENTS IS INCLUDED IN THE APRIL REPORT.  
SUBJECT: DATA TRANSMISSION MEDICAL/HEALTH APPLICATIONS  
KEYWORDS: ATS-1; SATELLITE; PACEMAKER; ALASKA; MEDICAL COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 275

DATE OF DOCUMENT/TYPE: JAN-JUL 1972 / PROGRESS REPORT

TITLE OF DOCUMENT: MONTHLY PROGRESS REPORTS ON CONTRACT NIN 72-4712

AUTHOR: STOOP, P.T.

SPONSORING AGENCY: GEOPHYSICAL INSTITUTE, UNIVERSITY OF ALASKA, COLLEGE, ALASKA

SATELLITE: ATS-1

EXPERIMENT PERIOD: JAN-JUL 1972

ABSTRACT:

REPORTS INDICATE PROGRESS IN COMMUNICATIONS BETWEEN VILLAGE HEALTH AIDES AND PARTICIPATING HOSPITALS. SOME OF THE EQUIPMENT PROBLEMS ARE DISCUSSED. SEVERAL EMERGENCY CALLS ARE DESCRIBED. AN ATTEMPT BY TANANA PERSONNEL TO USE REDLINE AT THE UNIVERSITY OF WASHINGTON WAS marginally successful. THESE REPORTS GIVE A GOOD PICTURE OF THE EFFORT DURING THE FIRST HALF OF 1972.

SUBJECT:

DATA TRANSMISSION

MEDICAL/HEALTH APPLICATIONS

KEYWORDS:

ATS-1; SATELLITE; ALASKA; MEDICAL COMMUNICATIONS; BIOMEDICAL

UNIVERSITY OF DAYTON ACCESS NUMBER: 276

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DATE OF DOCUMENT/TYPE: MAR 1971 / TECHNICAL REPORT

TITLE OF DOCUMENT: REPORT ON ALASKA BIOMEDICAL COMMUNICATIONS EXPERIMENT

AUTHOR: UNKNOWN

SPONSORING AGENCY: UNKNOWN

SATELLITE: ATS-1

EXPERIMENT PERIOD: MAR 1971

ABSTRACT: THIS REPORT GIVES A NUMBER OF FACTS ON THE SUCCESS OF THE EXPERIMENT. SUBJECTIVE EVALUATIONS OF VOICE QUALITY ARE GIVEN ALONG WITH STATISTICS ON THE FREQUENCY OF SUCCESSFUL CONTACT. ALSO INCLUDED IS SOME INSIGHT INTO THE PROBLEMS OF THE VILLAGE HEALTH AIDES.

CONCLUSION: SATELLITE COMMUNICATION CAN GREATLY IMPROVE THE PRESENT QUALITY OF VILLAGE HEALTH CARE.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; ALASKA; VILLAGE HEALTH CARE; HEALTH; DOCTOR CALL

UNIVERSITY OF DAYTON ACCESS NUMBER: 277

DATE OF DOCUMENT/TYPE: MAR 1972 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: SATELLITE TELECOMMUNICATIONS EXPERIMENTS  
 AUTHOR: STANLEY, G.M.  
 SPONSORING AGENCY: GEOPHYSICAL INSTITUTE, UNIVERSITY OF ALASKA, COLLEGE, ALASKA  
 SATELLITE: ATS-1 EXPERIMENT PERIOD: 1971-1972  
 OBJECT OF EXPERIMENT: DETERMINE IF SATELLITES CAN BE USED IN CONJUNCTION WITH LOW COST TERMINALS TO IMPROVE HEALTH CARE AND EDUCATION IN RURAL AREAS OF ALASKA.  
 ABSTRACT: THIS WAS A PRESENTATION TO THE STATE OF ALASKA HOUSE OF REPRESENTATIVES, HEALTH, WELFARE AND EDUCATION COMMITTEE. INCLUDED IS A GENERAL DISCUSSION OF THE BACKGROUND, PURPOSE AND FUTURE NEEDS. SPECIFIC INFORMATION ON SITES AND EQUIPMENT IS GIVEN.  
 SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
 VOICE COMMUNICATIONS  
 KEYWORDS: ATS-1; SATELLITE; ALASKA; HEALTH; EDUCATION; COMMUNICATIONS

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DATE OF DOCUMENT/TYPE: 1972 / PROCEEDINGS

TITLE OF DOCUMENT: PROJECT SEARCH SATELLITE COMMUNICATIONS EXPERIMENT

AUTHOR: RYKOWSKI, R F

SPONSORING AGENCY: CALIFORNIA COUNCIL ON CRIMINAL JUSTICE

SATELLITE: ATS-1 EXPERIMENT PERIOD: 6 DEC 71 - 17 DEC 71

OBJECT OF EXPERIMENT: TO DETERMINE THE TECHNICAL PARAMETERS REQUIRED FOR OPERATIONAL UTILITY OF A SATELLITE TRANSMISSION LINK FOR RAPID FINGERPRINT CARD TRANSMISSION AND TO PROVIDE A BACKGROUND FOR A MORE DETAILED ANALYSIS AND REVIEW OF REQUIREMENTS.

ABSTRACT: THIS REPORT DISCUSSES THE USE OF THE ATS-1 SATELLITE FOR TRANSMISSION OF FINGERPRINTS. DISCUSSED ARE THE EQUIPMENT, EXPERIMENTAL CONFIGURATION, ALTERNATIVE SYSTEMS, AND THE EVALUATION OF ALTERNATIVES.

CONCLUSIONS: A NATIONAL SATELLITE-BASED COMMUNICATIONS SYSTEM FOR THE HIGH-SPEED TRANSMISSION OF FINGERPRINT IMAGES AND VARIOUS OTHER DOCUMENTS IS TECHNICALLY FEASIBLE AND BEST SATISFIES THE REQUIREMENTS OF LAW ENFORCEMENT AGENCIES.  
THE LEVEL OF GRAY SCALE HAS LITTLE OR NO EFFECT ON THE CLASSIFICATION OF FINGERPRINTS.  
THE MINIMUM ACCEPTABLE SIGNAL-TO-NOISE RATIO WAS FOUND TO BE 30 DB FOR DIGITAL FACSIMILE AND 19 DB FOR ANALOG IMAGES.

SUBJECT: DATA TRANSMISSION LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS

KEYWORDS: ATS-1; SATELLITE TRANSMISSION; FINGERPRINT; SEARCH; FACSIMILE; CALIFORNIA CRIME TECHNOLOGICAL RESEARCH FOUNDATION; PHOTOGRAPHY

UNIVERSITY OF DAYTON ACCESS NUMBER: 200

DATE OF DOCUMENT/TYPE: DEC 71 / PAPER  
 TITLE OF DOCUMENT: SPEECH-COMMUNICATION INSTRUCTION BY SATELLITE  
 AUTHOR: KUNIMOTO, ELIZABETH N  
 SPONSORING AGENCY: UNIVERSITY OF HAWAII: HONOLULU, HAWAII  
 SATELLITE: ATS-1 EXPERIMENT PERIOD: JUN 71 - AUG 71 AND JUN  
 OBJECT OF EXPERIMENT: TO BUILD INTERPERSONAL RELATIONSHIPS BY MEANS OF VOICE COMMUNICATION AMONG STUDENTS SEPARATED GEOGRAPHICALLY  
 ABSTRACT: THE EXPERIMENT ON INTERPERSONAL RELATIONSHIP BUILDING IS DESCRIBED. THE METHODOLOGY IS DISCUSSED.  
 CONCLUSION: 1. STUDENTS WHO COMMUNICATED BY VOICE ALONE BY MEANS OF SATELLITE LEARNED AS MUCH FROM ONE ANOTHER AND ALSO INFLUENCED ONE ANOTHER AS MUCH AS THOSE WHO COMMUNICATED FACE-TO-FACE.  
 2. THE REPLICATION, WHICH TOOK PLACE BETWEEN STUDENTS OF HAWAII AND NEW ZEALAND, REVEALED THAT INTERCULTURAL COMMUNICATION BY MEANS OF VOICE ALONE IS FEASIBLE.  
 SUBJECT: EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
 KEYWORDS: ATS-1; INTERCULTURAL EXCHANGE; INTERPERSONAL RELATIONSHIPS; COMMUNITY CLASSROOM; PEACESAT  
 UNIVERSITY OF DAYTON ACCESS NUMBER: 281

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DATE OF DOCUMENT/TYPE: SPRING 74 / JOURNAL ARTICLE

AUTHOR: AUBURN, F M

SPONSORING AGENCY: UNIVERSITY OF AUCKLAND: AUCKLAND, NEW ZEALAND

SATEL: ATS-1 EXPERIMENT PERIOD: APR 73 - JUN 73

OBJECT OF EXPERIMENT: TO EXAMINE THE POSSIBILITIES OF TEACHING LAW, WITH PARTICULAR REGARD TO DEVELOPING STATES AND TERRITORIES IN THE PACIFIC, BY SATELLITE.

ABSTRACT: THIS DOCUMENT DISCUSSES THE OUTCOME OF SEVERAL LAW LECTURES VIA ATS-1. THE EQUIPMENT IS DESCRIBED BRIEFLY. THE EXPERIMENT CONSISTS OF SIX ONE-HOUR LECTURES ON TOPICS OF INTERNATIONAL INTEREST. THESE TOPICS ARE MENTIONED AND REFERENCED. EXPERIMENT ENCOUNTERS FEW TECHNICAL DIFFICULTIES.

CONCLUSION: THE EXPERIMENT DEMONSTRATED THE FEASIBILITY OF INTERNATIONAL LAW LECTURE/DISCUSSION BY SATELLITE INVOLVING A NUMBER OF STATIONS.

SUBJECT: EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: ATS-1; PEACESAT; LAW; UNIVERSITY OF AUCKLAND; LAW LECTURES; INTERNATIONAL LAW

JOURNAL TITLE: JURIMETRICS JOURNAL: VOLUME 14, ISSUE 3, PAGES 172 - 173

UNIVERSITY OF DAYTON ACCESS NUMBER: 282

DATE OF DOCUMENT/TYPE: OCT 69 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE ROLE OF ORGANIZED UNSATURATED CONVECTIVE DOWNDRAFTS IN THE STRUCTURE AND RAPID DECAY OF AN EQUATORIAL DISTURBANCE

AUTHOR: ZIPSER, E J

SPONSORING AGENCY: NATIONAL CENTER FOR ATMOSPHERIC RESEARCH; BOULDER, COLORADO

SATELLITE: ATS-U; ATS-3 EXPERIMENT PERIOD: FEB 67 - APR 67

OBJECT OF EXPERIMENT: TO COLLECT EXTENSIVE METEOROLOGICAL DATA ON DISTURBANCES OF THE EQUATORIAL TROUGH ZONE.

ABSTRACT: THE LINE ISLANDS EXPERIMENT, CONDUCTED ON AND NEAR PALMYRA, FANNING AND CHRISTMAS ISLANDS DURING FEBRUARY-APRIL 1967, PRODUCED EXTENSIVE DATA ON DISTURBANCES OF THE EQUATORIAL TROUGH ZONE. ONE DISTURBANCE WHICH PASSED THROUGH THE HEART OF THE DATA NETWORK IS ANALYZED IN DETAIL. THIS DISTURBANCE INTENSIFIED RAPIDLY JUST EAST OF FANNING ISLAND DURING THE NIGHT OF 31 MARCH-1 APRIL, BUT SATELLITE AND SATELLITE OBSERVATIONS SHOW THAT IT DISSIPATED RAPIDLY DURING THE DAYLIGHT HOURS OF 1 APRIL. THE CONVERGENCE-DIVERGENCE PATTERNS ASSOCIATED WITH THE GROWTH AND DECAY OF THE DISTURBANCE ARE MOST INTENSE IN THE LOWEST 500 M. DATA FROM SERIAL RAWINSONDE RELEASES ON THE ISLANDS, COMBINED WITH RESEARCH AIRCRAFT DATA, ARE PRESENTED WHICH DEMONSTRATE THAT HIGHLY UNSATURATED DOWNDRAFTS ARE PRODUCED, FIRST ON THE CONVECTIVE SCALE AND THE MESOSCALE, AND FINALLY BECOMING ORGANIZED OVER THE ENTIRE 600-KM EXTENT OF THE SYSTEM. CUMULUS DEVELOPMENT IS EFFECTIVELY SUPPRESSED IN THE DOWNDRAFT AIR, ONLY BEING RESTORED AFTER 6-12 HOURS BY THE GREATLY ENHANCED ENERGY FLUX FROM SEA TO ATMOSPHERE, AND THROUGH THE BOUNDARY LAYER. IN ORDER TO PRODUCE THE OBSERVED DOWNDRAFTS, IT IS SHOWN THAT THE THREE-DIMENSIONAL CIRCULATION PATTERNS AND THERMODYNAMIC PROCESSES WITHIN REGIONS OF INTENSE CONVECTION ARE CLOSELY ANALOGOUS TO THOSE IN TYPICAL MID-LATITUDE SQUALL LINES.

CONCLUSION: SEE ABSTRACT

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; LINE ISLAND EXPERIMENT; METEOROLOGY; CLOUDS; BOUNDARY LAYER WINDS; EQUATORIAL ZONE; WINDS

JOURNAL TITLE: JOURNAL OF APPLIED METEOROLOGY; VOLUME 6, ISSUE 5, PAGES 799-814

UNIVERSITY OF DAYTON ACCESS NUMBER: 283

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DATE OF DOCUMENT/TYPE: DEC 73 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE LINE ISLAND EXPERIMENT

AUTHOR: ZIPSER, E J

SF (SOPING AGENCY): NATIONAL CENTER FOR ATMOSPHERIC RESEARCH; BOULDER, COLORADO

SATELLITE: ATS-1

EXPERIMENT PERIOD: FEB 67 - APR 67

OBJECT OF EXPERIMENT: TO COLLECT EXTENSIVE METEOROLOGICAL DATA ON DISTURBANCES OF THE EQUATORIAL TROUGH ZONE

ABSTRACT: THE LINE ISLANDS EXPERIMENT HAS RESULTED IN UNIQUE AND COMPREHENSIVE DATA FOR STUDIES OF THE METEOROLOGY OF THE EQUATORIAL PACIFIC. IT IS ONE OF SEVERAL RECENT FIELD PROGRAMS IN TROPICAL METEOROLOGY DESIGNED TO ATTACK THE CENTRAL PROBLEM OF SCALE INTERACTIONS, ESPECIALLY THE ROLE OF CONVECTIVE AND MESOSCALE SYSTEMS. SOME OF THE RECENT EVIDENCE IS REVIEWED THAT INDICATES THE IMPORTANCE OF THESE INTERACTIONS IN UNDERSTANDING THE NON-STEADY STATE ASPECTS OF TROPICAL DISTURBANCES. A VARIETY OF RESULTS FROM THE LINE ISLANDS EXPERIMENT ARE SUMMARIZED, WITH EMPHASIS ON THEIR RELEVANCE TO THE PLANNING OF GARP TROPICAL EXPERIMENTS.

CONCLUSION: THE ISOLATION OF THE DOWNDRAFT-SQUALL MECHANISM AND ITS RAPID FEEDBACK TO THE SYNOPTIC SCALE ILLUSTRATES THE NEED TO CONSIDER THE NON-STEADY STATE ASPECTS OF MANY TROPICAL DISTURBANCES. THE LINE ISLANDS EXPERIMENT IS CONTRIBUTING CONSIDERABLY TO OUR KNOWLEDGE OF TROPICAL METEOROLOGY.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; LINE ISLAND EXPERIMENT; TROPICAL METEOROLOGY; WINDS; CLOUDS; BOUNDARY LAYER WINDS; EQUATORIAL ZONE

JOURNAL TITLE: BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY; VOLUME 51, ISSUE 12, PAGES 1136 - 1146

UNIVERSITY OF DAYTON ACCESS NUMBER: 284

DATE OF DOCUMENT/TYPE: SEP 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: SATELLITE BROADCASTING OF WWV SIGNALS

AUTHOR: HANSON, E. W. & HAMILTON, W. F.

SPONSORING AGENCY: NATIONAL BUREAU OF STANDARDS, BOULDER, COLORADO

SATELLITE: ATS-1, ATS-3

EXPERIMENT PERIOD: AUG 71-AUG 73

OBJECT OF EXPERIMENT: TO DISCERN THE ADVANTAGES AND SPECIAL PROBLEMS ASSOCIATED WITH THE BROADCASTING OF TIME AND FREQUENCY INFORMATION FROM GEOSTATIONARY SATELLITES.

ABSTRACT: AN EXPERIMENT CONCERNING THE BROADCASTING OF TIME AND FREQUENCY INFORMATION FROM GEOSTATIONARY SATELLITES IS DISCUSSED. INCLUDED ARE DISCUSSIONS ON SATELLITE MOTION, TIME DELAY, DOPPLER SHIFT, AND DELAY CALCULATIONS, GROUND STATION REQUIREMENTS, TIME RECOVERY TECHNIQUES, AND TIMING RESOLUTION AND ACCURACY ARE ALSO INCLUDED. DELAY COMPUTATION AIDS FOR THE USER WERE DESIGNED TO PROVIDE FREE SPACE DELAYS BETWEEN THE MASTER CLOCK AND THE USER. MEASUREMENTS MADE IN NORTH AND SOUTH AMERICA DEMONSTRATED A TIMING RESOLUTION OF ABOUT 10 MICRO SECONDS AND AN ACCURACY OF 25 MICRO SECONDS.

CONCLUSION: THE LEVEL OF OPERATION OBTAINED WAS NOT SATISFACTORY FOR NATIONAL SERVICE, BUT SATELLITES OFFER THE CAPABILITY FOR HIGHER ACCURACY AND MORE RELIABLE TIME AND FREQUENCY SIGNALS REQUIRED BY THE INDUSTRY.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-3; TIME DISSEMINATION; FREQUENCY; SATELLITE BROADCASTING; DOPPLER SHIFT; NATIONAL BUREAU OF STANDARDS

JOURNAL TITLE: IEEE TRANSACTIONS, VOL. AES-10, ISSUE 5, PAGES 562-573

UNIVERSITY OF DAYTON ACCESS NUMBER: 285

DATE OF DOCUMENT/TYPE: AUG 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: USING SATELLITE TECHNOLOGY TO INCREASE PROFESSIONAL COMMUNICATIONS AMONG TEACHERS.

AUTHOR: WIGREN, H.E.

SPONSORING AGENCY: NATIONAL EDUCATION ASSOCIATION: WASHINGTON, DC

SATELLITE: ATS-1 EXPERIMENT PERIOD: SEP 73-JUN 74 AND SEP 74

OBJECT OF EXPERIMENT: TO IMPROVE PROFESSIONAL COMMUNICATIONS AMONG TEACHERS

ABSTRACT: THIS REPORT DESCRIBES THE SATELLITE DEMONSTRATIONS/EXPERIMENTS CONDUCTED BY THE NATIONAL EDUCATION ASSOCIATION DURING THE SCHOOL YEARS 1973-1974 AND 1974-1975, IN CONJUNCTION WITH THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, THE NATIONAL LIBRARY OF MEDICINE, THE ALASKA BROADCASTING COMMISSION, AND THE PACIFIC PEACESAT NETWORK.

THE REPORT IS IN THREE PARTS: PART ONE, A GENERAL DESCRIPTION OF EACH OF THE DEMONSTRATIONS; PART TWO, AN EVALUATION OF THE RESULTS OF THE DEMONSTRATION, AND PART THREE, AN EXHIBIT OF PRESS RELEASES, ARTICLES AND OTHER MATERIALS PERTAINING TO THE DEMONSTRATIONS.

CONCLUSION: SOME BROADCASTS WENT WELL. ONE EXPERIMENT (SATELLITE SEMINAR) WAS CONSIDERED MARGINAL. THE LARGEST PROBLEM SEEMED TO BE LACK OF EXPERIENCE. NOTABLE IMPROVEMENT OCCURRED IN THE EXPERIMENTS RUN DURING THE SECOND YEAR.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; NATIONAL EDUCATION ASSOCIATION; ALASKA; HAWAII; SATELLITE SEMINAR; PEACESAT; COMMUNICATIONS; TEACHER EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 286

DATE OF DOCUMENT/TITLE: APRIL 73 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-5 MULTIPATH/RANGING/DIGITAL DATA L-BAND EXPERIMENTAL PROGRAM

AUTHOR: SUTTON, R. W.

SPONSORING AGENCY: BOEING COMMERCIAL AIRPLANE COMPANY; P.O. BOX 3707; SEATTLE, WASH.

SATELLITE: ATS-5

EXPERIMENT PERIOD: APRIL 69 - JULY 73

OBJECT OF EXPERIMENT: THE MULTIPATH EXPERIMENT WAS UNDERTAKEN TO ADEQUATELY PREDICT OR EVALUATE THE PERFORMANCE OF COMMUNICATION/NAVIGATION/SURVEILLANCE SYSTEMS. THE RANGING EXPERIMENT WAS DESIGNED TO DEMONSTRATE THE FUNDAMENTALS OF AN AIR TRAFFIC SURVEILLANCE SYSTEM THAT COULD PROVIDE A GROUND CONTROL CENTER WITH AIRCRAFT POSITION ACCURATE TO 1 NM.

#### ABSTRACT:

A DESCRIPTION OF AN L-BAND MULTIPATH/RANGING/DIGITAL DATA COMMUNICATION EXPERIMENTAL PROGRAM IS GIVEN. TESTS INVOLVED AN FAA KC-119 JET AIRPLANE, THE NASA ATS-5 SATELLITE, THE NASA/ROSMAN GROUND STATION, AND THE FAA WAFSC FACILITY. ALL TESTS WERE CONDUCTED WITHIN THE 1545- TO 1655-MHZ FREQUENCY BAND ALLOCATED FOR FUTURE AERONAUTICAL SERVICES. TESTS INCLUDED 33 OVEROCEAN MULTIPATH AND RANGING FLIGHTS IN THE NORTH ATLANTIC REGION, 16 DIGITAL DATA COMMUNICATION TESTS, 6 OVERLAND MULTIPATH FLIGHTS INCLUDING BOTH SUMMER AND WINTER CONDITIONS, SIX OVEROCEAN MULTIPATH FLIGHTS IN THE PACIFIC REGION, AND 9 FIXED-LINK SCINTILLATION TESTS. SUMMARY TEST RESULTS ARE PRESENTED AND DISCUSSED RELATIVE TO THEORETICAL EXPECTATIONS.

THE MULTIPATH EXPERIMENT WAS DESIGNED TO: (1) OBTAIN SEA-REFLECTED AND COMPOSITE SIGNAL DATA FOR VARIOUS SEA CONDITIONS, ELEVATION ANGLES, AND MULTIPATH RECEIVING ANTENNA POLARIZATIONS; (2) DETERMINE PATH POWER LEVEL, COHERENT AND MEAN INCOHERENT ENERGIES, AMPLITUDE PROBABILITY DISTRIBUTION, AND TOTAL SPECTRA FOR THE SEA-REFLECTED SIGNALS; AND (3) ANALYSE COMPOSITE DATA TO DETERMINE RICE CHANNEL PARAMETERS, DEMONSTRATE SELECTIVE FADING, AND ESTIMATE COHERENCE BANDWIDTH. A MAJOR GOAL OF THE EXPERIMENT WAS TO CORRELATE THE MEASUREMENTS WITH THEORETICALLY DERIVED RESULTS TO VERIFY A N. APPROPRIATE SCATTER MODEL. THE CLOSE AGREEMENT BETWEEN THEORETICALLY PREDICTED AND MEASURED RESULTS INDICATES THAT USE OF THE PHYSICAL OPTICS SCATTER MODEL FOR THE PREDICTION OF OVEROCEAN AEROSAT MULTIPATH CHANNEL CHARACTERISTICS IS JUSTIFIED.

THE RANGING EXPERIMENT WAS DESIGNED TO DEMONSTRATE THE FUNDAMENTALS OF AN AIR TRAFFIC SURVEILLANCE SYSTEM THAT COULD PROVIDE A GROUND CONTROL CENTER WITH KNOWLEDGE OF THE AIRCRAFT POSITION ACCURATE TO 1 NM (1-SIGMA). SPECIFIC OBJECTIVES WERE TO DEMONSTRATE THE SATELLITE TIME-RANGING CONCEPT WITH A TYPICAL JET AIRCRAFT AT L-BAND FREQUENCIES, VERIFY THE PREDICTED RANGING ACCURACY FOR THE CHANNEL SIGNAL-TO-NOISE RATIO INVOLVED, AND CHARACTERIZE AND DETERMINE THE EXTENT OF DEGRADATION CAUSED BY OVEROCEAN MULTIPATH REFLECTIONS. THESE OBJECTIVES WERE ACCOMPLISHED WITH TWO BASIC EXPERIMENTAL TESTS: THE PRIMARY RANGING TEST (PRT) AND THE SECONDARY RANGING TEST (SRT).

THE STANDARD DEVIATION OF RELATIVE RANGE ERROR MEASURED FOR THE ADDITIVE THERMAL NOISE CHANNEL DURING PRIMARY RANGING TESTS AGREED WELL WITH THEORETICAL PREDICTIONS OF PERFORMANCE. BIAS ERROR MEASUREMENTS GENERALLY FELL WITHIN THE RANGE FROM 1 TO 500 METERS; CERTAIN TESTS YIELDED BIAS ERRORS OF SEVERAL TENS OF KILOMETERS, GIVING INCONCLUSIVE RESULTS. THE LATTER PERFORMANCE IS ATTRIBUTED TO INTERMITTENT LOSS OF PHASE SYNCHRONIZATION OF EITHER THE RUBIDIUM FREQUENCY STANDARD AND/OR INACCURATE SATELLITE ORBIT PREDICTIONS.

THE SECONDARY RANGING TEST RESULTS PROVIDE A MEASURE OF STANDARD DEVIATION OF RANGE ERROR DUE TO MULTIPATH INTERFERENCE ALONE. SEVERAL SIGNIFICANT TEST RESULTS WERE OBTAINED. THE RELATIVE PERFORMANCE DEGRADATION FOR HORIZONTALLY POLARIZED MULTIPATH RECEPTION VERSUS VERTICALLY POLARIZED RECEPTION FOLLOWED THE BEHAVIOR GIVEN BY THE FRESNEL REFLECTION COEFFICIENTS. SIXTEEN TESTS OF VARIOUS TYPES WERE CONDUCTED DURING MARCH AND APRIL 1973 USING THE NASA/ROSMAN GROUND STATION, THE NASA ATS-5 SATELLITE, AND AN FAA KC-119 JET AIRPLANE. MODE 1 TESTS FULLY DEMONSTRATED DIGITAL TRANSMISSION OF ALPHANUMERIC TEXT OVER A SATELLITE/AIRCRAFT LINK AT L-BAND. MOST INTERESTING OF THESE TESTS WERE TWO CONDUCTED USING THE FLUSH-MOUNTED SLOT DIPOLE ANTENNAS FOR RECEPTION IN THE AIRPLANE. THE HAND-COPY TEXT PRINTOUT WAS EASILY READABLE, WITH OBSERVED BIT ERRORS OF 1 IN 20,000 AND 1 OUT OF 12,000 FOR THE TWO TESTS PERFORMED.

THE SERIES OF FLIGHTS WERE MADE TO ACQUIRE OVERLAND MULTIPATH DATA. THE FIRST CONSISTED OF TWO FLIGHTS IN AUGUST 1972 OVER MARSHY, HILLY, AND MOUNTAINOUS REGIONS IN CANADA'S NORTHWEST TERRITORIES.



ES AND ALASKA. ELEVATION ANGLES TO THE SATELLITE RANGE FROM 14 DEGREES TO 19 DEGREES. THE SECOND TEST SERIES OF SIX FLIGHTS TOOK PLACE IN FEBRUARY 1973 OVER RELATIVELY SMOOTH, SNOW-COVERED TERRAIN IN THE NORTHWEST TERRITORIES AND MOUNTAINOUS REGIONS IN NORTHERN QUEBEC AND LABRADOR.

THE PACIFIC REGION MULTIPATH TESTS WERE DESIGNED TO OBTAIN OVEROCEAN MULTIPATH SCATTER DATA THAT COULD COMPLEMENT AND PERHAPS EXTEND THE "VERY ROUGH" CATEGORY NORTH ATLANTIC DATA OBTAINED PREVIOUSLY. TEST LOCATIONS WERE CHOSEN TO ENHANCE THE CHANCES OF ENCOUNTERING OCEAN SURFACE CONDITIONS THAT WERE MORE RELATIVELY SMOOTH OR SMOOTHER IN TERMS OF ELECTROMAGNETIC SCATTERING AT L-BAND. THREE DATA ACQUISITION FLIGHTS WERE MADE IN THE VICINITY OF THE HAWAIIAN ISLANDS DURING AUGUST 1972. THREE ADDITIONAL FLIGHTS WERE MADE NEAR PAGO PAGO DURING MARCH 1973. DATA WERE ACQUIRED, PROCESSED, AND ANALYZED USING PROCEDURES DESCRIBED IN THE PHASE V REPORT.

ANALYSIS OF THE DATA YIELDED RESULTS SIMILAR TO THOSE OF THE NORTH ATLANTIC TEST SERIES: I.E., (1) THE REFLECTED SIGNAL WAS PREDOMINANTLY DIFFUSE, (2) THE MEAN NORMALIZED SCATTERED ENERGY WAS APPROXIMATELY EQUAL TO THE PRODUCT OF FRESNEL REFLECTION COEFFICIENT AND SMOOTH-EARTH DIVERGENCE FACTOR, (3) CIRCULAR POLARIZATION SENSE REVERSAL OCCURRED UPON REFLECTION, (4) THE SCATTERED SIGNAL DOPPLER SPECTRA WERE OF GAUSSIAN DISTRIBUTION, AND (5) DOPPLER BANDWIDTHS WERE GENERALLY SMALLER THAN THOSE OF THE NORTH ATLANTIC TESTS DUE TO THE SMALLER RMS SEA SLOPES.

CONCURRENT WITH THE PACIFIC REGION MULTIPATH TESTS, A SERIES OF L-BAND LINE-OF-SIGHT SCINTILLATION MEASUREMENTS WAS MADE BETWEEN THE ATS-5 SATELLITE AND THE RECEIVING TERMINAL ONECARD THE KC-135 AIRPLANE. FOR THESE TESTS THE AIRPLANE WAS PARKED AT THE AIRPORT AT PAGO PAGO, WHICH CORRESPONDS TO A GEOMAGNETIC LATITUDE OF 17 DEGREES S.

CONCLUSION:

SEE ABSTRACT

SUBJECT:

AIR TRAFFIC CONTROL  
VOICE COMMUNICATIONS

AIRCRAFT COMMUNICATIONS

DATA TRANSMISSION

KEYWORDS:

L-BAND; ATS-5; MULTIPATH TRANSMISSION; TONE RANGING; DATA TRANSMISSION

TECHNICAL REPORT NUMBER: FAA-EE-73-57

UNIVERSITY OF DAYTON ACCESS NUMBER: 288

DATE OF DOCUMENT/TYPE: JUNE 76 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ATS-1 VHF COMMUNICATIONS EXPERIMENTATION  
AUTHOR: JEFFERSON, F W  
SPONSORING AGENCY: NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER: ATLANTIC CITY, NEW JERSEY 08405  
SATELLITE: ATS-1 EXPERIMENT PERIOD: MAY 1967 - DEC 1969  
OBJECT OF EXPERIMENT: TO INVESTIGATE AND OBTAIN CHARACTERISTIC DATA OF VERY HIGH FREQUENCY (VHF) VOICE AND DIGITAL COMMUNICATIONS LINKS VIA SATELLITE RELAY TO PROVIDE INPUTS FOR DETERMINING SUBSYSTEM FEASIBILITY FOR OVER OCEAN AIR TRAFFIC AND POINT-TO-POINT INFORMATION TRANSFER.  
ABSTRACT: EIGHT FLIGHT TESTS WERE CONDUCTED UTILIZING THE APPLICATIONS TECHNOLOGY SATELLITE-1 (ATS-1) TO OBTAIN CHARACTERISTIC DATA OF VHF COMMUNICATIONS LINKS VIA SATELLITE RELAY FOR USE IN OVEROCEAN AIR TRAFFIC CONTROL SUBSYSTEM DESIGN STUDIES. MEASUREMENTS OF SIGNAL LEVEL, SIGNAL PLUS NOISE-TO-NOISE RATIO, MULTIPATH PROPAGATION, VOICE INTELLIGIBILITY, ADJACENT CHANNEL INTERFERENCE, AND 75, 1200, AND 2400 BITS-PER-SECOND DIGITAL COMMUNICATIONS PERFORMANCE WERE OBTAINED. RESULTS OF THE TESTS ARE DISCUSSED IN THE REPORT AND REVIEWED IN THE "SUMMARY OF RESULTS" SECTION. IN GENERAL, OVERALL COMMUNICATIONS RELIABILITY USING THE ATS-1 LINK WAS CONSIDERED MARGINAL.  
CONCLUSION: OVERALL COMMUNICATIONS RELIABILITY USING THE ATS-1 LINK WAS CONSIDERED MARGINAL.  
SUBJECT: AIR TRAFFIC CONTROL AIRCRAFT COMMUNICATIONS DATA TRANSMISSION  
VOICE COMMUNICATIONS  
KEYWORDS: ATS-1; COMMUNICATIONS; VOICE COMMUNICATION; DATA TRANSMISSION; MULTIPATH TRANSMISSION; SATELLITE  
TECHNICAL REPORT NUMBER: FAA-RD-70-12 UNIVERSITY OF DAYTON ACCESS NUMBER: 289

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DATE OF DOCUMENT/TYPE: APR 1971 / JOURNAL ARTICLE

TITLE OF DOCUMENT: COMMUNICATIONS SATELLITE FOR ALASKA AND THE MOUNTAIN STATES

AUTHOR: FAGER, J A; KINCADE, C W

SPONSORING AGENCY: CONVAIR/GENERAL DYNAMICS CORP; SAN DIEGO, CALIFORNIA

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO DETERMINE THE FEASIBILITY OF USING SATELLITES FOR COMMUNICATIONS IN ALASKA AND THE MOUNTAIN STATES.

ABSTRACT: A SYNTHESIS OPTIMIZATION STUDY WAS CONDUCTED TO DEFINE A COMMUNICATIONS SATELLITE FOR THE STATES OF ALASKA, ARIZONA, COLORADO, IDAHO, MONTANA, NEVADA, NEW MEXICO, AND WYOMING. THE SYSTEM DESCRIBED WILL PROVIDE THREE CHANNELS OF COMMERCIAL TELEVISION AND EIGHT CHANNELS OF EDUCATIONAL/INSTRUCTIONAL TELEVISION TO BOTH ALASKA AND THE MOUNTAIN STATES AND 1200 DUPLEX TELEPHONE CHANNELS TO ALASKA. IT IS ASSUMED THAT A COMMUNITY RECEIVING SYSTEM WILL BE USED FOR VERY SMALL VILLAGES AND A REDISTRIBUTION SYSTEM, EITHER CABLE OR REBROADCAST, WILL BE USED FOR THE LARGER COMMUNITIES. USING THE COMPUTERIZED SYNTHESIS PROGRAM, SYSTEM SENSITIVITIES ABOUT THE SELECTED DESIGN ARE DEVELOPED TO ILLUSTRATE THE IMPACT OF PERTURBATIONS OF THE DESIGN REQUIREMENTS.

CONCLUSION: AN ALASKA/MOUNTAIN STATES SYSTEM IS TECHNICALLY FEASIBLE. LARGE SATELLITES ARE CONSIDERABLY LESS EXPENSIVE FOR THIS SERVICE. THE TOTAL SYSTEMS COST IS INSENSITIVE TO DOWNLINK FREQUENCY. LOWER SIGNAL QUALITY WILL REDUCE RECEIVER COST.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: ALASKA; SATELLITE; COMMUNICATIONS; TELECOMMUNICATION; INSTRUCTIONAL TELEVISION

JOURNAL TITLE: AIAA PAPER

UNIVERSITY OF DAYTON ACCESS NUMBER: 290

DATE OF DOCUMENT/TYPE: AUG 1974 / CONFERENCE PAPER  
TITLE OF DOCUMENT: EXPERIMENTAL SATELLITE TELECOMMUNICATIONS NETWORKS IN THE PACIFIC HEMISPHERE  
AUTHOR: MANLEY, ANTHONY  
SPONSORING AGENCY: PEACESAT, WELLINGTON POLYTECHNIC, WELLINGTON, NEW ZEALAND  
SATELLITE: ATS-1

ABSTRACT: SINCE 1972 A SERIES OF EXPERIMENTS IN INTERNATIONAL CONFERENCE TELECOMMUNICATIONS FOR SOCIAL BENEFIT HAS BEEN TAKING PLACE IN THE PACIFIC HEMISPHERE. EXPERIMENTAL NETWORKS LINKED BY ATS-1 SATELLITE RELAY HAVE BEEN ESTABLISHED IN ALASKA AND THE PACIFIC FOR SOME TIME. ADDITIONAL NETWORKS ARE TO BECOME OPERATIONAL DURING 1974. WELLINGTON POLYTECHNIC HAS BEEN ONE OF THE CHIEF EXPERIMENTERS IN THE INTERNATIONAL PACIFIC NETWORK (THE PEACESAT PROJECT), AND CONSIDERABLE EXPERIENCE OF THE PROBLEMS AND POTENTIAL USES OF SUCH NETWORKS HAS BEEN ACCUMULATED. THIS EXPERIENCE WILL BE REPORTED, AND CURRENT ACTIVITY AND FUTURE PLANS FOR SATELLITE LINKED NETWORKS REVIEWED. THE SPECIAL FEATURES OF SUCH 'BI-LATERAL BROADCASTING' NETWORKS WILL BE DISCUSSED. THE PROBLEMS OF PROVIDING FOR THESE NETWORKS ON AN OPERATIONAL BASIS WILL BE CONSIDERED.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
KEYWORDS: ALASKA; PEACESAT; TELECOMMUNICATIONS; ATS-1; SATELLITE; ALOHA; COMPUTER

UNIVERSITY OF DAYTON ACCESS NUMBER: 291

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DATE OF DOCUMENT/TYPE: JUN 1974 / TECHNICAL REPORT  
TITLE OF DOCUMENT: EXPERIMENTAL EVALUATION OF SATELLITE COMMUNICATIONS AND POSITION FIXING FOR MARITIME USERS  
AUTHOR: ANDERSON, R E; LAROSA, R M  
SPONSORING AGENCY: EXXON/GENERAL ELECTRIC  
SATELLITE: ATS-1; ATS-3  
EXPERIMENT PERIOD: JUL 1973-FEB 1974

OBJECT OF EXPERIMENT: GENERAL ELECTRIC'S OBJECTIVE WAS TO EVALUATE THE VARIOUS CONSTRAINTS ON SHIP-BORNE EQUIPMENT THAT WOULD AFFECT THE DESIGN OF AN OPERATIONAL SHIP SATELLITE TERMINAL, TO DETERMINE THE ACCURACY AND RELIABILITY OF RANGING AND POSITION FIXING FROM GEOSTATIONARY SATELLITES USING THE TONE-CODE TECHNIQUE WAS TESTED, AND TO OBSERVE DATA ON THE FACTORS AFFECTING ITS ACCURACY WERE OBTAINED. EXXON'S PRIME OBJECTIVE WAS TO EVALUATE THE TYPES OF COMMUNICATIONS SERVICE THAT COULD BE MOST BENEFICIAL TO FLEET OPERATIONS, TOGETHER WITH AN EVALUATION OF THE SPECIFIC TECHNICAL PARAMETERS OF THIS NEW COMMUNICATIONS SERVICE THAT WOULD BE MOST APPROPRIATELY SPECIFIED OR REQUESTED BY THE END USER.

ABSTRACT: THE EXPERIMENT DESCRIBED IN THIS REPORT WAS A JOINT EFFORT OF EXXON CORPORATION AND THE GENERAL ELECTRIC COMPANY TO MAKE A COMPREHENSIVE EVALUATION OF THE MARITIME USES OF SATELLITE COMMUNICATIONS AND POSITION-FIXING. NASA PROVIDED THE USE OF TWO APPLICATIONS TECHNOLOGY SATELLITES, ATS-1 AND ATS-3, FOR ONE HOUR A DAY OF VHF TRANSMISSION TIME. THE EXPERIMENT WAS CONDUCTED FROM JULY 1973 THROUGH FEBRUARY 1974 DURING WHICH COMMUNICATIONS MESSAGES AND RANGING SIGNALS WERE EXCHANGED BETWEEN THE SHIP ESSO BAHAMAS, CARRYING OIL FROM VENEZUELA TO THE U.S. EAST COAST, AND THE GENERAL ELECTRIC STATION IN SCHENECTADY, NEW YORK. THE GROUND STATION RELAYED THESE MESSAGES TO AND FROM THE EXXON NEW YORK CITY OFFICE OVER TELEPHONE LAND LINES.

CONSIDERABLE DATA WERE OBTAINED TO ENABLE BOTH EXXON CORPORATION AND THE GENERAL ELECTRIC COMPANY TO DEVELOP AND SPECIFY A SATELLITE COMMUNICATIONS AND POSITION FIXING SYSTEM TO BENEFIT THE MARITIME INDUSTRY BY IMPROVING THE COST EFFECTIVENESS OF ITS OPERATIONS. OPERATIONAL DIFFICULTIES WERE IDENTIFIED IN ORDER TO ELIMINATE THEM AS VIABLE OPERATIONAL SYSTEMS ARE DESIGNED AND BECOME AVAILABLE. USER REQUIREMENTS CAN NOW BE MORE CLEARLY STATED IN ORDER TO INFLUENCE FUTURE OPERATIONAL SYSTEMS, NOW IN THEIR PRELIMINARY STAGES OF IMPLEMENTATION.

THIS EXPERIMENT ALSO PROVIDED THE OPPORTUNITY TO TEST A COMPLETE SHIP POSITION NAVIGATION-SURVEILLANCE SYSTEM. IT IS BELIEVED THAT THIS WAS THE FIRST TIME THAT A COMPLETE EXPERIMENTAL SYSTEM INCLUDING REAL-TIME TRACKING OF THE GEOSTATIONARY SATELLITES HAS BEEN IMPLEMENTED BY ANYONE.

THE NAVIGATION TECHNIQUE WAS SUCCESSFULLY DEMONSTRATED AND POSITION FIXES WERE AUTOMATICALLY OBTAINED BY RANGING FROM TWO GEOSTATIONARY SATELLITES OPERATING AT VHF FREQUENCIES. THE CALCULATED POSITION FIXES WERE RELATED TO THE SHIP BY TELETYPE FOR COMPARISON WITH THE SHIP POSITIONS DETERMINED BY CONVENTIONAL MEANS. AN AVERAGE ACCURACY OF 1.3 NM, WAS ACHIEVED WHEN ACCURATE CALIBRATION OF EQUIPMENT TIME DELAY CIRCUITRY WAS AVAILABLE. CAUSES OF SYSTEM ERRORS WERE IDENTIFIED WHICH CAN BE CORRECTED TO PERMIT GREATER ACCURACIES IN OPERATIONAL SYSTEMS.

CONCLUSIONS: THIS EXPERIMENT CONCLUDES THAT SATELLITE COMMUNICATIONS OFFERS BETTER COMMUNICATIONS CAPABILITY THAN ANYTHING PRESENTLY AVAILABLE TO THE MARITIME INDUSTRY. IT IS A VAST IMPROVEMENT OVER THE EXISTING SHIP COMMUNICATIONS WITH REGARD TO AVAILABLE MODES, SIGNAL PROPAGATION, CIRCUIT AVAILABILITY, SIGNAL QUALITY AND TRANSMISSION SPEED. UNLESS SIGNIFICANT IMPROVEMENTS ARE MADE IN THE EXISTING MARITIME COMMUNICATIONS SYSTEM, SATELLITE COMMUNICATIONS, WHEN FULLY IMPLEMENTED WITH WIDE COVERAGE, COULD REPLACE THE LONG RANGE HF SHIP COMMUNICATIONS SYSTEM ASSUMING ECONOMICS ARE FAVORABLE. ALL COMMUNICATIONS PRESENTLY SENT BY THE PRESENT SHIP RADIO SYSTEM AND MAIL CAN BE MORE RAPIDLY AND RELIABLY TRANSMITTED AND WITH EQUAL OR BETTER QUALITY THROUGH USE OF SATELLITE COMMUNICATIONS.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION VOICE COMMUNICATIONS  
KEYWORDS: ATS-1; ATS-3; MARITIME; POSITION FIXING; SATELLITE COMMUNICATION; RANGING; FACSIMILE; L-BAND

DATE OF DOCUMENT/TYPE: 1974

/ CONFERENCE PAPER

TITLE OF DOCUMENT: THE BENEFITS AND APPLICATIONS OF MARITIME SATELLITES

AUTHOR: LAROSA, R M

SPONSORING AGENCY: EXXON CORP: NEW YORK, NY

SATELLITE: ATS-1: ATS-3

ABSTRACT:

IN 1975, THE FIRST OPERATIONAL MARITIME COMMUNICATIONS SATELLITE SYSTEM (MARISAT) WILL BE AVAILABLE TO ALL VESSELS. THIS PAPER SUMMARIZES ITS BACKGROUND, APPLICATION AND BENEFITS. THE RESULTS AND CONCLUSIONS OF THE EXXON/GENERAL ELECTRIC SATELLITE EXPERIMENT ARE PRESENTED AND HOW THEY RELATE TO THE NEW SYSTEM. A COMPARISON IS MADE BETWEEN THE EXISTING HF/HF LONG RANGE TERRESTRIAL RADIO SYSTEM AND THE MARISAT SERVICE WITH RESPECT TO COST, AVAILABLE MODES, RADIO COVERAGE, MESSAGE DELAY AND TRANSMISSION SPEED. THE DRAWBACKS OF BOTH SYSTEMS ARE ALSO HIGHLIGHTED WITH POSSIBLE SOLUTIONS TO ALLIEVIATE THEM. EXXON'S TEST AND EVALUATION PLANS FOR MARISAT ARE INDICATED IN ADDITION TO TELETYPE, VOICE AND USER POPULATION ESTIMATES. FUTURE CONCEPTS AND USES OF MARITIME SATELLITES ARE DISCUSSED AND HOW IT CAN IMPACT SHIPPING FUNCTIONS. IT IS CONCLUDED HERE THAT THE NEW CAPABILITY HAS THE POTENTIAL TO PROVIDE SUBSTANTIAL ECONOMIC AND SAFETY BENEFITS AS WELL AS ENHANCING EFFECTIVE SHIP MANAGEMENT.

MS. OPERATIONAL DIFFICULTIES WERE IDENTIFIED IN ORDER TO ELIMINATE

SUBJECT:

MARITIME TRAFFIC CONTROL

VOICE COMMUNICATIONS

KEYWORDS:

ATS-1: ATS-3: MARITIME: MARITIME SATELLITE: SATELLITE COMMUNICATION: NAVIGATION: SATELLITE BENEFITS: MARITIME SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 293

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DATE OF DOCUMENT/TYPE: AUG 68

/ BIBLIOGRAPHY

TITLE OF DOCUMENT: CHRONOLOGICAL HISTORY OF AIRLINE SATELLITE COMMUNICATIONS TESTING WITH THE NASA APPLICATIONS TECHNOLOGY SATELLITES, ATS-1 AND ATS-3

SATELLITE: ATS-1; ATS-3

EXPERIMENT PERIOD: FEB 1967-JUL 1968

ABSTRACT: THIS LISTS IN CHRONOLOGICAL ORDER THE AIRLINE TWO-WAY VHF COMMUNICATIONS EXPERIMENTS USING ATS-1 AND ATS-3. A BRIEF DESCRIPTION OF EACH EXPERIMENT IS GIVEN.

SUBJECT: AIR TRAFFIC CONTROL                      AIRCRAFT COMMUNICATIONS                      HISTORICAL INFORMATION

KEYWORDS: ATS-1; ATS-3; AIRCRAFT; COMMUNICATIONS; RANGING; APPLICATION TECHNOLOGY SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 294

DATE OF DOCUMENT/TYPE: MAR 1968 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ARINC/AIRLINES SATCOM PROGRAM  
SPONSORING AGENCY: AERONAUTICAL RADIO INC: ANNAPOLIS, MARYLAND  
SATELLITE: ATS-3; ATS-3

OBJECT OF EXPERIMENT: (1) DETERMINE THE TECHNICAL CHARACTERISTICS OF AN OPERATIONAL SATELLITE VHF AIR/GROUND/AIR COMMUNICATIONS SYSTEM DESIGNED FOR VOICE AND DATA AND TO (2) VERIFY THAT THE APPLICATION OF SATELLITES TO THE VHF AERONAUTICAL MOBILE ENVIRONMENT IS PRACTICABLE WITHIN THE STATE OF THE ART EXISTING IN SPACE CRAFT AND AVIONIC EQUIPMENT, ESPECIALLY AIRCRAFT SATCOM ANTENNAS.

ABSTRACT: THIS REPORT IS AN INTERIM SUMMARY OF THE FIRST YEAR OF THE ARINC/AIRLINE PROGRAM OF EVALUATION OF A COMMUNICATION CHANNEL UTILIZING SATELLITE RELAY. THE RESULTS PRESENTED WERE DERIVED FROM TESTS USING APPLICATIONS TECHNOLOGY SATELLITE FLIGHT NO. 1 (ATS-1), ONE OF TWO SATELLITES EQUIPPED WITH A VHF FREQUENCY TRANSLATING REPEATER IN THE ATS PROGRAM OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. ARINC, AS THE APPROVED NASA EXPERIMENTER IN THIS PROGRAM, ACTS AS THE COORDINATING AGENCY FOR THE AIRLINE INDUSTRY AND THE SUPPORTING ORGANIZATIONS' TEST ACTIVITIES AND IS RESPONSIBLE FOR PROVIDING EXPERIMENTAL DATA TO NASA.  
THE RESULTS PRESENTED HEREIN ARE NOT COMPLETE. HOWEVER, THE SIGNAL BEHAVIOR AND MULTIPATH FADING AT ELEVATION ANGLES ABOVE 30 DEGREES ARE SUFFICIENTLY DEFINED TO BE CONCLUSIVE.

CONCLUSION: THERE WAS A SIGNIFICANT DIFFERENCE BETWEEN THE RESULTS OBSERVED AT ARINC-ANNAPOLIS AND THOSE AT BOEING. THIS IS ATTRIBUTED TO ANOMALIES ASSOCIATED WITH THE LOWER ELEVATION ANGLE AT ARINC.  
THE SHORT TERM FADING THAT WAS OBSERVED IS SYNCHRONIZED WITH THE SATELLITE ROTATION AND IS OBVIOUSLY SATELLITE INDUCED.  
THE VARIATION OF THE TEST SEGMENTS IN THE 50-70 DEGREE RANGE INDICATES A NONUNIFORM ANTENNA PATTERN AT HIGH ANGLE FOR THE TEST ANTENNAS.

SUBJECT: AIRCRAFT COMMUNICATIONS VOICE COMMUNICATIONS  
KEYWORDS: ATS-1; ATS-3; AIRCRAFT; COMMUNICATIONS; VHF; MULTIPATH TRANSMISSION

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DATE OF DOCUMENT/TYPE: DEC 1967 /

TITLE OF DOCUMENT: ATS VHF PERFORMANCE

SPONSOR: AGENCY: HUGHES AIRCRAFT CO: SPACE SYSTEM DIV

SATELLITE: ATS-1: ATS-3

OBJECT OF EXPERIMENT: TO EVALUATE SIGNAL STRENGTH OF THE VHF REPEATER ON BOARD THE ATS-1 AND -3

ABSTRACT: THIS REPORT GIVES A SUMMARY OF ATS VHF PERFORMANCE AS APPLIED TO ATS-1 AND ATS-3. A BRIEF DESCRIPTION OF EACH SATELLITE, INCLUDING POSITION, LAUNCH DATA, AND REPEATER CHARACTERISTICS IS GIVEN. PERFORMANCE CURVES DERIVED FROM CERTAIN MODULATION AND RECEIVE CHARACTERISTICS ARE SHOWN. THE PRIMARY EMPHASIS OF THE REPORT IS PLACED ON THE SIGNAL STRENGTH VARIATIONS AS MEASURED BY HUGHES IN RECENT FLIGHT TESTS. THE DATA OBTAINED HAS BEEN REDUCED AND PRESENTED IN STATISTICAL FORM.

CONCLUSION: WHEN UPLINK ERP IS NOT LARGE ENOUGH TO SATURATE THE REPEATER, INPUT ANOMALIES WILL AFFECT THE RECEIVED SIGNAL STRENGTH.

SUBJECT: SATELLITE PERFORMANCE

KEYWORDS: ATS-1: ATS-3: VHF: APPLICATION TECHNOLOGY SATELLITE: COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 296

DATE OF DOCUMENT/TYPE: DEC 1973 / JOURNAL ARTICLE

TITLE OF DOCUMENT: TRANSMISSION OF RADIOLOGIC INFORMATION BY SATELLITE

AUTHOR: LESTER, R G; ET AL

SPONSORING AGENCY: DUKE UNIVERSITY MEDICAL CENTER; DURHAM, NORTH CAROLINA

SATELLITE: ATS-1 EXPERIMENT PERIOD: NOV 15, 1971

OBJECT OF EXPERIMENT: TO EVALUATE RADIOGRAPHS THAT WERE TRANSMITTED BY SATELLITE FOR DIAGNOSTIC QUALITY.

ABSTRACT: FLUOROSCOPIC RESULTS FROM THE FIRST TRANSMISSION OF RADIOLOGIC INFORMATION BY EARTH-SATELLITE LINK WERE OF DIAGNOSTIC QUALITY, BUT BECAUSE OF INADEQUACIES IN THE SENSOR, THE QUALITY OF TRANSMITTED RADIOGRAPHS WAS POOREP. EXPERIMENTS SHOW THAT THE ENTIRE GAMUT OF RADIOLOGIC INFORMATION COULD BE TRANSMITTED IN REAL TIME FROM REMOTE TO CENTRAL LOCATIONS WITH NO DISTANCE LIMITATION AND AT REASONABLE COST IF A SATISFACTORY SENSOR OF RADIOGRAPHIC IMAGES WERE CONSTRUCTED TO COMPLEMENT EXISTING FLUOROSCOPIC CAPABILITIES.

CONCLUSION: IT WAS DEMONSTRATED CONCLUSIVELY THAT THE INFORMATION CAPACITY OF THE SATELLITE LINK IS MORE THAN ADEQUATE FOR FLUOROSCOPIC TRANSMISSIONS AT NORMAL FRAME RATES. STATIC IMAGES OBTAINED BY VIEWING BACK-LIGHTED STANDARD RADIOGRAPHS WITH A COMMERCIAL VIDICON CAMERA WERE ALSO TRANSMITTED. THE IMAGES IN THIS CASE WERE UNSATISFACTORY FOR DIAGNOSTIC PURPOSES. THIS WAS DUE TO THE POOR QUALITY OF THE VIDICON IMAGES FED TO THE TRANSMITTER RATHER THAN TO INADEQUACIES IN THE TRANSMISSION LINK.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-1; SATELLITE; FLUOROSCOPY; RADIOLOGY; RADIOLOGISTS; FACSIMILE

JOURNAL TITLE: RADIOLOGY; 189, 3, 731-732

UNIVERSITY OF DAYTON ACCESS NUMBER: 298

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**DATE OF DOCUMENT/TYPE:** OCT 1974 / NEWSPAPER ARTICLE  
**TITLE OF DOCUMENT:** LONG DISTANCE LIFE SAVER  
**AUTHOR:** ELLIOTT, J  
**SPONSORING AGENCY:** GENERAL ELECTRIC CO; RESEARCH AND DEVELOPMENT CENTER; SCHENECTADY, NEW YORK  
**SATELLITE:** ATS-3 **EXPERIMENT PERIOD:** OCT 1974  
**OBJECT OF EXPERIMENT:** DEMONSTRATE FEASIBILITY OF HANDHELD ANTENNA AND WALKIE-TALKIE TO CONTACT SATELLITE.  
**ABSTRACT:** THIS IS A NEWS RELEASE EXPLAINING THE USE OF A HANDHELD ANTENNA AND A SHORTWAVE RADIO TO ACTIVE THE  
ATS-3 SATELLITE. A PICTURE IS INCLUDED.  
**CONCLUSION:** MESSAGE WAS SUCCESSFULLY SENT AND RECEIVED.  
**SUBJECT:** VOICE COMMUNICATIONS  
**KEYWORDS:** ATS-3

UNIVERSITY OF DAYTON ACCESS NUMBER: 299

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DATE OF DOCUMENT/TYPE: NOV 1971

/ TECHNICAL REPORT

TITLE OF DOCUMENT: UTILIZATION OF SIMPLE OMNIDIRECTIONAL VHF-ANTENNAE ON BOARD SHIPS FOR SATELLITE RECEPTION, ELIMINATING THE MULTI-PATH EFFECTS THROUGH A DIVERSITY SYSTEM

AUTHOR: GOEBEL W

SPONSORING AGENCY: DEUTSCHE LUFT-UND RAUMFAHRT; GERMANY

SATELLITE: ATS-3

EXPERIMENT PERIOD: OCT 1963

OBJECT OF EXPERIMENT: ELIMINATION OF MULTI-PATH EFFECTS IN SATELLITE COMMUNICATIONS THROUGH A DIVERSITY SYSTEM

ABSTRACT: THIS REPORT IS A FURTHER DEVELOPMENT OF THE EXPERIMENTS IN 1960, CARRIED OUT ON BOARD THE RESEARCH SHIP METEOR.

THE FIRST PART DEMONSTRATES THE MATHEMATICAL INTERRELATIONSHIP. MULTI-PATH EFFECTS. THIS KNOWLEDGE ALLOWS A VERY SIMPLE CONFIGURATION OF OMNIDIRECTIONAL ANTENNAE FOR FADING AVOIDANCE BY ANTENNA DIVERSITY. BY INCLUSION OF THE REFLECTED BEAM, ONE CAN REDUCE THE LIMIT OF USABLE ELEVATION ANGLES FOR SATELLITE RECEPTION, NORMALLY REGARDED TO BE 10 DEGREES, DOWN TO THE BREWSTER ANGLE (VHF: 3 DEGREES). FURTHERMORE, MARGINS AGAINST MULTI-PATH FADING MAY BE OMITTED. HOWEVER, A SATELLITE WITH A CIRCULARLY POLARISED ANTENNA MUST BE ASSUMED.

THE SECOND PART DESCRIBES IMPROVED DISTANCE MEASUREMENTS ACCORDING TO TONE-RANGING METHODS. AN ACCURACY OF POSITION FINDING (1 SIGMA DEVIATION) OF 1-2 NAUTICAL MILES SEEMS TO BE ATTAINABLE, EVEN THOUGH IONOSPHERIC DISTANCE ERRORS EXIST.

THE THIRD PART IS A CONTRIBUTION TO THE QUESTION, UNDER WHAT CONDITIONS SATELLITE AND TERRESTRIAL COMMUNICATION MAY EXIST WITHIN THE SAME FREQUENCY BAND WITHOUT MUTUAL INTERFERENCE? THE RESULTS ARE PROMISING.

CONCLUSION: MULTIPATH EFFECTS ARE NOT ELIMINATED BY DIRECTIONAL ANTENNAE WHEN LOW ELEVATION ANGLES ARE ENCOUNTERED.

IT IS FEASIBLE TO OPERATE TERRESTRIAL RADIO AND SATELLITE RADIO IN THE SAME FREQUENCY BAND.

THE ANTENNA-DIVERSITY METHOD OF RECEPTION ALLOWS THE RANGE OF PERMISSIBLE ANGLES OF ELEVATION TO BE EXTENDED DOWNWARD AS FAR AS THE BREWSTER ANGLE.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-3; ANTENNA; SATELLITE; METEOR; VHF; COMMUNICATIONS; NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 300

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DATE: DOCUMENT/TYPE: APR 69 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: DETERMINATION OF MASS OUTFLOW FROM A THUNDERSTORM COMPLEX USING ATS-3 PICTURES  
 AUTHOR: FUJITA, T T; BRADBURY, D L  
 SPONSORING AGENCY: DEPT. OF GEOPHYSICAL SCIENCES; UNIVERSITY OF CHICAGO; CHICAGO, ILLINOIS  
 SATELLITE: ATS-3 EXPERIMENT PERIOD: APR 19, 1968  
 OBJECT OF EXPERIMENT: TO STUDY THE FACTORS PRESENT IN THE DEVELOPMENT OF SEVERE THUNDERSTORMS AND TORNADOOS IN THE MIDWEST  
 ABSTRACT: PRESENTED IN THIS PAPER ARE SOME PRELIMINARY RESULTS OF THE TORNAOO WATCH EXPERIMENT, 1968. TWO EXCELLENT CASES OF TORNAOO OUTBREAKS OVER THE MIDWEST WERE PHOTOGRAPHED AT 14-MIN INTERVALS BY ATS III. ONE OF THE CASES OCCURRED ON APRIL 19 AND WAS STUDIED TOGETHER WITH AEROLOGICAL AND SURFACE DATA, RADAR PICTURES, AND CLOUD DISPLACEMENT COMPUTATION FROM ATS PICTURES. IT WAS FOUND THAT THERE WAS FOUND THAT THERE WAS LITTLE EVIDENCE OF MESOSCALE DIVERGENCE OF HIGH-CLOUD VELOCITIES PRIOR TO THE STORM FORMATION. AS THE STORM GREW RAPIDLY, A SIGNIFICANT DIVERGENCE AT THE ANVIL LEVEL MODIFIED THE FIELD OF JETSTREAM-CLOUD VELOCITIES. THIS PRELIMINARY STUDY RESULTED IN A NUMBER OF NEW QUESTIONS TO BE ANSWERED IN THE FUTURE RATHER THAN SOLVING PREVIOUSLY UNANSWERED QUESTIONS. IT IS EXPECTED THAT THE 1969 EXPERIMENT TO BE CONDUCTED AGAIN BY NASA AND ESSA WILL INCLUDE ACQUISITION OF RADAR AND SYNOPTIC DATA SO THAT OUR EFFORT CAN BE EXPANDED TOWARD THE SOLUTION OF COMPLICATED PHENOMENA OF SEVERE-STORM FORMATION OVER THE MIDWEST.  
 CONCLUSION: BY USING FOUR PICTURES TAKEN AT 14-MIN INTERVALS HIGH CLOUD VELOCITIES CAN BE COMPUTED WITH AN ACCURACY BETTER THAN 10 PERCENT ERROR.  
 SUBJECT: METEOROLOGY  
 KEYWORDS: ATS-3; SATELLITE; THUNDERSTORM; TORNAOO; CLOUD MOTION; STORM  
 TECHNICAL REPORT NUMBER: 79 UNIVERSITY OF DAYTON ACCESS NUMBER: 361

DATE OF DOCUMENT/TYPE: DEC 1969 / TECHNICAL REPORT

TITLE OF DOCUMENT: DYNAMICAL ANALYSIS OF OUTFLOW FROM TORNADO-PRODUCING THUNDERSTORMS AS REVEALED BY ATS-3 PICTURES

AUTHOR: NINCHIKAWA, K

SPONSORING AGENCY: DEPT OF GEOPHYSICAL SCIENCES; UNIVERSITY OF CHICAGO; CHICAGO, ILLINOIS

SATELLITE: ATS-3

EXPERIMENT PERIOD: APR 23, 1968

OBJECT OF EXPERIMENT: TO IDENTIFY PARAMETERS ASSOCIATED WITH SEVERE THUNDERSTORM BUILDUP IN THE MIDWEST.

ABSTRACT: DETAILED DYNAMIC AND DYNAMIC ANALYSES OF OUTFLOW FROM TORNADO-PRODUCING THUNDERSTORMS OF APRIL 23, 1968 WERE MADE BY USING CONVENTIONAL RAINWEDGE DATA COMBINED WITH ATS-3 PICTURES. IT WAS FOUND THAT THE PRE-EXISTING FLOW AT THE SURFACE LEVEL OVER STORM AREA CHANGED SPATIALLY INTO OUTFLOW AS THE STORM DEVELOPED. WHEN THE STORM REACHED THEIR MATURE STAGE, THE HORIZONTAL DIMENSIONS OF THE OUTFLOW INCREASED TO ABOUT 500 KM. DETAILED ANALYSES OF RAINWEDGE DATA INSIDE THE OUTFLOW AREA REVEALED THE EXISTENCE OF A MESOTROPOSPHERIC HIGH CORE ACCOMPANIED BY A SIGNIFICANT FIELD OF CONVERGENCE BELOW THE 700-MB SURFACE.

CONCLUSIONS: QUANTITATIVE ANALYSIS OF THE THERMODYNAMICAL AND DYNAMICAL ASPECTS OF THE OUTFLOW FIELD SHOWED THAT THE OUTFLOW WAS INITIATED AND MAINTAINED BY CONVECTIVE WARMING.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; SATELLITES; CLOUD MOTION; TORNADO WATCH; THUNDERSTORM

TECHNICAL REPORT NUMBER: 41

UNIVERSITY OF DAYTON ACCESS NUMBER: 382

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DATE OF DOCUMENT/TYPE: AUG 1972 / TECHNICAL REPORT

TITLE - DOCUMENT: USE OF PICTURES IN HURRICANE MODIFICATION

AUTHOR: FUJITA, T T

SPONSORING AGENCY: UNIVERSITY OF CHICAGO; DEPT OF GEOPHYSICAL SCIENCES; CHICAGO, ILLINOIS

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: EVALUATE EFFECTS OF SEEDING HURRICANES

ABSTRACT: ATS PICTURES TAKEN AT FREQUENT INTERVALS DURING A 4-DAY PERIOD, SEPTEMBER 25-28, WERE ANALYZED IN AN ATTEMPT TO DETERMINE POSSIBLE CHANGES OF HURRICANE GINGER SEEDED ON SEPTEMBER 26 AND 28. BOTH MESOSCALE NEGATIVES AND NASA'S 4X ENLARGEMENTS FROM DIGITAL TAPES WERE INVOLVED DRAMATICALLY INTO OUTFLOW AS THE STORMS DEVELOPED. WHEN THE ESTIMATED. ALL PICTURES TAKEN ON EACH DAY WERE TIME-INTEGRATED TO DETERMINE THE DAY-TO-DAY VARIATIONS. ONE-DAY SEQUENCE OF ATS PICTURES WERE ALSO DIVIDED INTO THREE PERIODS TO PRODUCE 3 TIME-INTEGRATED IMAGES EACH DAY. SERIES OF 5-PICTURE TIME INTEGRATIONS WERE ALSO MADE, FROM WHICH A TIME-INTEGRATED MOVIE OF GINGER WAS PRODUCED. MEANWHILE, THE CHARACTERISTICS OF THE EYE WERE DETERMINED BASED ON ATS PICTURES TO DEFINE A NUMBER OF EYE PARAMETERS WHICH ARE EYE TYPE, WALL-CLOUD DIAMETER, EQUIVALENT EYE DIAMETER, EYE INDEX, AND ESTIMATED CENTRAL PRESSURE. DESPITE THESE EFFORTS CONCLUSIVE EVIDENCE OF MODIFICATION EFFECTS HAS NOT BEEN FOUND IN ATS PICTURES REDUCED IN VARIOUS FORMS. IT IS, THUS, ASSUMED THAT GINGER OF 1971 WAS TOO WEAK AND TOO LOW IN CONVECTIVE CLOUD-TOP HEIGHTS TO RESPOND SIGNIFICANTLY TO THE SEEDING EXPERIMENT.

CONCLUSION: CHANGES IN CLOUD PATTERNS EXPECTED FROM THE MODIFICATION HYPOTHESES CAN BE DETECTED FROM SEQUENCES OF ATS PICTURES

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; HURRICANE; SATELLITE; STORMFURY EXPERIMENT; CLOUDS; CLOUD SEEDING

TECHNICAL REPORT NUMBER: 106

UNIVERSITY OF DAYTON ACCESS NUMBER: 304

DATE OF DOCUMENT/TYPE: JUL 74 / TECHNICAL REPORT

TITLE OF DOCUMENT: ANALYSIS OF ANVIL GROWTH FROM ATS PICTURES

AUTHOR: YUN-MEI CHANG

SPONSORING AGENCY: UNIVERSITY OF CHICAGO; DEPT OF GEOPHYSICAL SCIENCES; CHICAGO, ILLINOIS

SATELLITE: ATS-3

EXPERIMENT PERIOD: JUL 26, 1969

ABSTRACT: THE GROWTH OF TWO FAST-SPREADING ANVIL CLOUDS IS STUDIED FROM A SEQUENCE OF ATS-III PICTURES ON JUL Y 26, 1969. THE ANVIL BOUNDARIES ARE DRAWN AT ONE-HOUR INTERVALS AND THE CLOUD MOTION FIELDS ARE T HUS CALCULATED. THE RESULTS ARE RELATED TO A MOVING TROPICAL DEPRESSION WITH A WARM CORE ANTICYCLON E ALOFT. IT IS SUGGESTED THAT THE TRACKING OF ANVIL BOUNDARIES FROM SATELLITE PICTURES IS USEFUL IN OBTAINING A RELIABLE AND ACCURATE UPPER-DIVERGENCE FIELD OVER DISTURBANCES IN THE TROPICS, AND, TH US, MAKES IT POSSIBLE TO OBTAIN A BETTER COMPREHENSION OF THE MECHANISM IN TROPICAL CIRCULATIONS. E FIELD OF JETSTREAM-CLOUD VELOCITIES. THIS PRELIMINARY STUDY RESU

CONCLUSION: BY TRACKING THE ANVIL BOUNDARIES FROM A SEQUENCE OF ATS PICTURE ENLARGEMENTS, RELIABLE MEAN DIVERGE NCE AND OUTFLOW FIELDS OF UPPER LEVEL CAN BE OBTAINED.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; SATELLITE PHOTOGRAPHS; CLOUDS; ANVIL BOUNDARIES; WEATHER

TECHNICAL REPORT NUMBER: 122

UNIVERSITY OF DAYTON ACCESS NUMBER: 305

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DATE OF DOCUMENT/TYPE: AUG 1968 / PROGRESS REPORT

TITLE OF DOCUMENT: VHF TRA IONOSPHERIC PROPAGATION MEASUREMENTS

AUTHOR: MIRST, D

SPONSORING AGENCY: MINISTRY OF TECHNOLOGY; RADIO DEPT; ROYAL AIRCRAFT ESTABLISHMENT; FARNBOROUGH, HANTS; ENGLAND

SATELLITE: ATS-3 EXPERIMENT PERIOD: JUL 8, 10, 12, 19, 1968

OBJECT OF EXPERIMENT: TO MEASURE THE STRENGTH OF THE TRANSPONDED SIGNAL IN ENGLAND.

ABSTRACT: THIS REPORT CONTAINS THE RESULTS OF A SIGNAL STRENGTH TEST FROM THE USA AT 149.22 MHZ AND TRANSPONDED TO ENGLAND FROM ATS-3 AT 135.63 MHZ. A TOTAL OF FOUR VHF TRANSMISSIONS FROM ATS 3 HAS BEEN MONITORED AT TWO SEPARATED SITES. THE TRANSMISSION TIMES WERE SUCH THAT SUNSET WOULD BE AFFECTING THE IONOSPHERE, ITS HEIGHT AND ACTIVITY WOULD BE CHANGING DURING THE TIME OF THE TRANSMISSIONS. METEOROLOGICAL AND IONOSPHERIC CONDITIONS ARE DESCRIBED AND A COMPARISON OF THE TRANSMISSIONS.

CONCLUSION: ON ONE OCCASION VIOLENT VARIATIONS OF SIGNAL STRENGTH WERE RECORDED, VARIATIONS FAR IN EXCESS OF WHAT MIGHT HAVE BEEN ANTICIPATED ON THE BASIS OF PREVIOUS EXPERIENCE. ON THE REMAINING THREE OCCASIONS ONLY MINOR VARIATIONS (ABOUT 3 DB) WERE RECORDED. THE CHARACTER OF THESE VARIATIONS WAS NOT SIMILAR TO SCINTILLATION EFFECTS RECORDED IN EARLIER EXPERIMENTS.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-3; SATELLITE; WAVE TRANSMISSION; VHF

TECHNICAL REPORT NUMBER: LSG/69/332 UNIVERSITY OF DAYTON ACCESS NUMBER: 306

DATE OF DOCUMENT/TYPE: MAR 1969 / TECHNICAL REPORT

TITLE OF DOCUMENT: TESTS OF CHIRP MODULATED DATA TRANSMISSIONS FROM GROUND (MOBILE) TO AN AIRCRAFT VIA SATELLITE ATS-3

AUTHOR: BARNES, G M; JAMES, D J

SPONSORING AGENCY: MINISTRY OF TECHNOLOGY; ROYAL AIRCRAFT ESTABLISHMENT; FARNBOROUGH HANTS, ENGLAND

SATELLITE: ATS-3 EXPERIMENT PERIOD: 26 NOV-12 DEC 1968

OBJECT OF EXPERIMENT: TO DETERMINE THE EFFECTIVENESS OF CHIRP MODULATION TO COMBAT MULTIPATH AND DOPPLER SHIFTS ON RADIO LINKS DATA BETWEEN AIRCRAFT AND SYNCHRONOUS SATELLITES.

ABSTRACT: THIS REPORT COVERS A SERIES OF TESTS ON VHF, USING THE CHIRP SYSTEM, FROM MOBILE EQUIPMENT AT COVE RADIO STATION TO A COMET AIRCRAFT VIA THE GEO-STATIONARY SATELLITE ATS-3. TEST PROCEDURES, COLLECTED DATA AND CONCLUSIONS ARE INCLUDED.

CONCLUSION: FOR MORE THAN HALF THE TIME THE ERROR RATES WERE LOW BUT AT OTHER TIMES THE RESULTS WERE AFFECTED BY FARADAY ROTATION AND BETTER RELIABILITY WOULD BE OBTAINED WITH A CIRCULARLY POLARIZED AIRCRAFT ANTENNA. COMPARISONS WITH CW SHOWED REDUCED SIGNAL LEVEL VARIATIONS WITH CHIRP INDICATING PROTECTION AGAINST MULTIPATH RECEPTION.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-3; SATELLITE; CHIRP MODULATION; DATA TRANSMISSION; MULTIPATH TRANSMISSION; VHF

TECHNICAL REPORT NUMBER: TR 69 66 UNIVERSITY OF DAYTON ACCESS NUMBER: 307

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DATE OF DOCUMENT/TYPE: 1969

/ TECHNICAL REPORT

TITLE OF DOCUMENT: THE EFFECTS OF SCINTILLATION OF SATELLITE TO AIRCRAFT COMMUNICATION LINKS

SPONSORING AGENCY: SPENBLY LIMITED: ANDOVER, HANTS: ENGLAND

SATELLITE: ATS-3

EXPERIMENT PERIOD: 1969

OBJECT OF EXPERIMENT: TO DETERMINE EFFECTS OF SCINTILLATION ON SATELLITE TO AIRCRAFT COMMUNICATION LINKS

ABSTRACT: THE RESULTS OF MEASUREMENTS OF THE EFFECTS OF SCINTILLATION ON SATELLITE TO AIRCRAFT COMMUNICATION LINKS FOR VHF AND VHF BANDS ARE PRESENTED. METHODS OF ANALYSING RESULTS AND A DISCUSSION OF THE ACCURACY OF THE DATA ARE ALSO INCLUDED.

CONCLUSION: THE VARIATIONS IN THE MEAN SIGNAL IS PROBABLY DUE TO VARIATIONS IN MULTIPATH PROPAGATION.  
THE AMPLITUDE OF SCINTILLATION IN THE VHF BAND IS APPROXIMATELY TWICE THAT FOUND IN THE VHF BAND.

SUBJECT: AIRCRAFT COMMUNICATIONS

KEYWORDS: ATS-3; SATELLITE; COMMUNICATIONS; SCINTILLATION MEASUREMENTS; AIRCRAFT

TECHNICAL REPORT NUMBER: 9/643/TR/4

UNIVERSITY OF DAYTON ACCESS NUMBER: 308

DATE OF DOCUMENT/TYPE: NOV 1973 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: L-BAND POWER SPECTRUM OF IONOSPHERIC FADING SIGNALS

AUTHOR: PONNAPPAN, S

SPONSORING AGENCY: COMMUNICATIONS RESEARCH CENTRE: OTTAWA, CANADA

SATELLITE: ATS-5

EXPERIMENT PERIOD: JUL 1971-NOV 1972

OBJECT OF EXPERIMENT: TO INVESTIGATE THE POWER SPECTRUM OF THE FADING CHARACTERISTIC OF 1550 MHZ SIGNALS RECEIVED AT CHURCHILL, MANITOBA AND OTTAWA, ONTARIO.

ABSTRACT: THE DATA USED IN THIS REPORT WAS RECORDED DURING THE PERIOD BETWEEN JULY 1971 AND NOVEMBER 1972. SAMPLES OF SIGNALS WITH VARIOUS TYPES OF FADING CHARACTERISTICS WERE SELECTED FOR THE POWER SPECTRUM ANALYSIS, AND INCLUDED HIGH-FREQUENCY, HIGH-AMPLITUDE FADING WITH AMPLITUDES AS GREAT AS 5 DB PEAK-TO-PEAK, LOW-FREQUENCY HIGH-AMPLITUDE FADING WITH AMPLITUDES AS GREAT AS 4 DB PEAK-TO-PEAK (WHICH WERE RECORDED AT CHURCHILL, MANITOBA, WHERE MAXIMUM AURORAL ACTIVITY IS KNOWN TO OCCUR,) AND SOME IN FREQUENT OCCURRENCES OF LOW-FREQUENCY FADING WITH AMPLITUDES AS GREAT AS 1.2 DB WHICH WERE RECORDED AT OTTAWA, ONTARIO.

CONCLUSION: NO APPRECIABLE POWER IS PRESENT IN FREQUENCY COMPONENTS ABOVE 1.1 HZ AND 0.3 HZ DURING QUIET IONOSPHERIC CONDITIONS AND DURING PERIODS OF MODERATE FADING, RESPECTIVELY. WHEN AMPLITUDE FADING IS HIGH, MOST OF THE POWER IS CONFINED TO FREQUENCY COMPONENTS FROM DC TO 0.4 HZ.

SUBJECT: VOICE COMMUNICATIONS

KEYWORDS: ATS-5; SATELLITE; L-BAND; IONOSPHERIC FADING

UNIVERSITY OF DAYTON ACCESS NUMBER: 309

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DATE OF DOCUMENT/TYPE: 1975

/ JOURNAL ARTICLE

TITLE DOCUMENT: TEACHING SATELLITE: PACIFIC ISLANDS JOIN IN EXPERIMENTAL PROJECT

AUTHOR: MC NECHAN, P.

SPONSORING AGENCY: UNIVERSITY OF THE SOUTH PACIFIC, SUVA, FIJI

SATELLITE: ATS-1

ABSTRACT: THIS ARTICLE DESCRIBES IN GENERAL TERMS THE UNIVERSITY OF THE SOUTH PACIFIC'S PARTICIPATION IN THE PEACESAT PROJECT. AN EXPERIMENTAL LEARNING PACKAGE IS OUTLINED. A BRIEF DISCUSSION OF SYSTEM PROBLEMS IS INCLUDED.

CONCLUSION: LOCAL GROUP DISCUSSION, FOLLOWED BY INTER-GROUP SATELLITE DISCUSSION, BRINGS WRITTEN MATERIALS AND ASSIGNMENTS INTO SHARPER FOCUS AND PROVIDES STIMULATION PREVIOUSLY LACKING.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS; SOUTH PACIFIC

JOURNAL TITLE: UNKNOWN

UNIVERSITY OF DAYTON ACCESS NUMBER: 310

DATE OF DOCUMENT/TYPE: APR. 1975 / TECHNICAL REPORT  
TITLE OF DOCUMENT: SATELLITE COMMUNICATION PROJECT: EXPERIMENTAL YEAR ONE  
AUTHOR: BENSTEAD, G.; NORTHCOTT, D.; MC MECHAN, P.  
SPONSORING AGENCY: UNIVERSITY OF THE SOUTH PACIFIC, LAUCALA BAY, SUVA, FIJI  
SATELLITE: ATS-1 EXPERIMENT PERIOD: 1972-1974  
OBJECT OF EXPERIMENT: RELIABLE COMMUNICATIONS FOR EDUCATION AND HEALTH APPLICATIONS IN THE SOUTH PACIFIC  
ABSTRACT: THIS REPORT COVERS THE EXPERIENCE OF THE UNIVERSITY OF THE SOUTH PACIFIC WITHIN ITS OWN EXPERIMENTAL PROGRAM. DURING THE FIRST YEAR OF OPERATION, THE ADMINISTRATIVE FRAMEWORK AND FINANCIAL CONSTRAINTS ARE DISCUSSED. A CONSIDERABLE PORTION OF THE REPORT IS DEVOTED TO DESCRIBING THE TERMINALS USED IN THE EXPERIMENT. ALSO INCLUDED IS A DISCUSSION OF TIME USED, PEOPLE INVOLVED AND PROGRAMS TRIED. SOME ATTEMPT IS MADE TO EVALUATE EACH OF THE VARIOUS EXPERIMENTS.  
SUBJECT: EDUCATIONAL APPLICATIONS  
KEYWORDS: ATS-1; SATELLITE; PEACESAT; COMMUNICATIONS; SOUTH PACIFIC

UNIVERSITY OF DAYTON ACCESS NUMBER: 311

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DATE OF DOCUMENT/TYPE: APR 1975 / BOOK

TITLE OF DOCUMENT: AN EDUCATOR'S GUIDE TO COMMUNICATION SATELLITE TECHNOLOGY

AUTHOR: POLCYN, K.A.

SPONSORING AGENCY: INFORMATION SCIENCES COMPANY, PLANNING RESEARCH CORPORATION, MCLEAN, VIRGINIA

SATELLITE: ATS-1; ATS-3

ABSTRACT: THIS BOOK CONTAINS INFORMATION ON THE BASIC CONCEPTS OF SATELLITE TECHNOLOGY INCLUDING ORBIT, LIFE TIME, COSTS, FUNCTION, ETC. PRESENT COMMUNICATION SATELLITE EDUCATIONAL EXPERIMENTATION IS DISCUSSED. BRIEF SUMMARIES OF THE ALASKA EXPERIMENT, THE HAWAII EXPERIMENT, AND THE STANFORD/BRAZIL EXPERIMENT ARE GIVEN.

UNIVERSITY OF DAYTON ACCESS NUMBER: 312

DATE OF DOCUMENT/TYPE: JUN 1975

/ PAPER

TITLE OF DOCUMENT: SOME POTENTIAL LEARNING COMMUNITY COMPETITORS FOR THE USE OF THE ALLOCATED BROADCAST SATELLITE FREQUENCY SPECTRUM

AUTHOR: POLCYN, K.A.

SPONSORING AGENCY: INFORMATION SCIENCES COMPANY, PLANNING RESEARCH CORPORATION, MCLEAN, VIRGINIA

ABSTRACT: FREQUENCIES HAVE BEEN ALLOCATED FOR BROADCAST SATELLITE SERVICES, AND THERE HAS BEEN CONSIDERABLE STRESS ON USE OF THE FREQUENCIES BY THE EDUCATIONAL COMMUNITY. HOWEVER, COMPETITION MAY ARISE FOR USE OF THE ALLOCATED SPECTRUM FROM OTHER ORGANIZATIONS WHO HAVE LEARNING NEEDS. SOME COMPETITORS MAY BE THE HEALTH PROFESSIONS, CORRECTIONAL INSTITUTIONS, THE LEGAL PROFESSION, INDUSTRY AND BUSINESS IN GENERAL, AND THE MILITARY ESTABLISHMENT. TO AVOID PROBLEMS OF COMPETITION, A REPRESENTATIVE WORKING GROUP OF POTENTIAL USERS SHOULD BE ESTABLISHED; A MORE PRACTICAL USE OF THE ALLOCATED FREQUENCY SPECTRUM SHOULD BE PERMITTED BY SEEKING UP-LINK ALLOCATION TO COMPLEMENT CURRENT DOWN-LINKS; ORBITAL SLOTS SHOULD BE RESERVED FOR SOCIAL SERVICE SATELLITES; MORE BROADCAST SPECTRUM BANDS SHOULD BE ALLOCATED IF THE CURRENT ALLOCATIONS ARE INSUFFICIENT TO PROVIDE FOR ALL USERS; AND RESEARCH SHOULD BE CONTINUED IN THE HIGHER FREQUENCY RANGES TO DETERMINE THE PRACTICALITY OF SUPPORTING BROADCAST AND OTHER COMMUNICATION ACTIVITIES BY USE OF THESE FREQUENCIES.

SUBJECT: BROADCASTING

KEYWORDS: ATS-1; SATELLITE; BROADCASTING; FREQUENCY; PEACESAT

UNIVERSITY OF DAYTON ACCESS NUMBER: 313

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DATE OF DOCUMENT/TYPE: AUG 1967 / PROPOSAL  
TITLE OF DOCUMENT: AUSTRALIAN POST OFFICE PROPOSED EXPERIMENTS FOR ATS PROGRAM  
JTHCR: HOMWOOD, M.I.  
SPONSORING AGENCY: DEPT OF SUPPLY, MELBOURNE, AUSTRALIA  
SATELLITE: ATS-1

ABSTRACT: THIS PROPOSAL BY THE AUSTRALIAN POST OFFICE ENUMERATES FOUR SEPARATE SATELLITE EXPERIMENTS: NAMELY, TIME AND FREQUENCY MEASUREMENTS, VALIDATION OF THE THEORY OF INTERFERENCE REDUCTION, COMPUTER COMMUNICATIONS, AND SIGNALLING FOR MULTIPLE ACCESS SYSTEMS. A BRIEF OUTLINE OF EACH EXPERIMENT IS INCLUDED.

SUBJECT: DATA TRANSMISSION TIME AND FREQUENCY MEASUREMENT

SYNOPSIS: ATS-1; SATELLITE: AUSTRALIA; FREQUENCY: COMPUTER COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 314

DATE OF DOCUMENT/TYPE: JAN 69 / TEXT OF ADDRESS  
TITLE OF DOCUMENT: THE NEXT FRONTIER: POTENTIALS AND PROBLEMS OF INTERNATIONAL-INTERCULTURAL EDUCATION VIA SATELLITES  
AUTHOR: WEDEMEYER, C. A.  
SPONSORING AGENCY: UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN  
SATELLITE: ATS-1  
OBJECT OF EXPERIMENT: TO PLAN FOR EDUCATIONAL DIFFUSION AND THE SOCIAL APPLICATION OF SATELLITE TELECOMMUNICATIONS  
ABSTRACT: THIS PAPER IS ADAPTED FROM AN ADDRESS GIVEN JAN 9, 1969, IN THE UNIVERSITY OF WISCONSIN SPACE SCIENCE COLLOQUIUM BY C. A. WEDEMEYER, PROFESSOR OF EDUCATION. THE PAPER IS WIDE RANGING BUT DEALS PRIMARILY WITH THE PHILOSOPHICAL AND EDUCATIONAL IMPLICATIONS OF SATELLITE ASSISTED COMMUNICATIONS ACROSS NATIONAL AND CULTURAL LINES.  
SUBJECT: EDUCATIONAL APPLICATIONS  
KEYWORDS: EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 315

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DATE OF DOCUMENT/TYPE: 1969

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TEXT OF ADDRESS

TITLE DOCUMENT: EDSAT: A PLAN FOR EDUCATIONAL DIFFUSION AND THE SOCIAL APPLICATION OF SATELLITE TELECOMMUNICATIONS

AUTHOR: WEDEMEYER, C. A.

SPONSORING AGENCY: UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO PLAN FOR EDUCATIONAL DIFFUSION AND THE SOCIAL APPLICATION OF SATELLITE TELECOMMUNICATIONS

ABSTRACT: THIS PAPER IS ESSENTIALLY A PROPOSAL, IN AN INDIRECT WAY, FOR THE INVOLVEMENT OF THE UNIVERSITY OF WISCONSIN IN AN EDUCATIONAL SATELLITE COMMUNICATIONS PROJECT. THE PAPER CITES THE UNIVERSITY OF WISCONSIN'S TRADITIONAL INVOLVEMENT IN COMMUNICATIONS RESEARCH ALONG WITH A PIONEER EFFORT IN COMMUNICATIONS SATELLITES.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; UNIVERSITY OF WISCONSIN; EDUCATION; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 316

DATE OF DOCUMENT/TYPE: OCTOBER 1975 / PAPER

TITLE OF DOCUMENT: HEALTH EDUCATION TELECOMMUNICATIONS EXPERIMENT

AUTHOR: WHALEN, R.A.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO TEST HEALTH AND EDUCATION APPLICATIONS TO REMOTE REGIONS USING LOW-COST RECEIVERS

ABSTRACT: THE HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT (HET) WAS CONDUCTED JOINTLY BY NASA AND NEN ON NASA'S ATS-6 COMMUNICATIONS SATELLITE. THIS EXPERIMENT ACTUALLY CONSISTED OF SIX EXPERIMENTS TESTING HEALTH AND EDUCATION APPLICATIONS OF A COMMUNICATION SPACECRAFT PRODUCING A BROADCAST OF COLOR TELEVISION DIRECTLY FROM SPACE TO OVER 120 LOW-COST RECEIVERS LOCATED IN REMOTE RURAL AREAS THROUGHOUT THE U.S. (INCLUDING ALASKA). THE EXPERIMENTS WERE CONDUCTED OVER THE PERIOD FROM 2 JULY 1974 TO 20 MAY 1975 AND OPERATED ON AN ALMOST DAILY BASIS. THE OVERALL TELECOMMUNICATIONS SYSTEM TO SUPPORT THESE EXPERIMENTS CONSISTED OF MANY ELEMENTS. THE ATS-6 SPACECRAFT: FIVE DIFFERENT TYPES OF EARTH STATIONS CONSISTING OF 120 VIDEO RECEIVE TERMINALS, 51 TELEPHONE TRANCEIVERS AND EIGHT VIDEO ORIGINATING TERMINALS OF THREE DIFFERENT TYPES. ACTUAL PERFORMANCE OF THE EQUIPMENT AS MEASURED IN THE FIELD WAS SHOWN TO EQUAL OR EXCEED PREDICTED VALUES.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
VOICE COMMUNICATIONS VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; HET EXPERIMENT; RURAL AREAS; TELECOMMUNICATIONS; COLOR TELEVISION; VIDEO COMMUNICATIONS

JOURNAL TITLE: ELECTRONICS AND AEROSPACE SYSTEMS CONVENTION

UNIVERSITY OF DAYTON ACCESS NUMBER: 508

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DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: TECHNICAL ASPECTS OF THE HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT.

AUTHOR: BOOR, JOHN L.; PRAUNSTEIN, JEAN; JANKY, JAMES M.; OGDEN, DAIL; FOTTER, JAMES G.; HARPER, E. LEE; VOLKMER, ELOCH; WHALEN, ALBERTA; HENDERSON, EARL; HUPE, HOWARD H.

SPONSORING AGENCY: DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, WASHINGTON, D. C.

SATELLITE: ATS-1; ATS-3; ATS-6 COMMUNICATIONS: VHF EXPERIMENT PERIOD: FEB 73 - MAY 75

OBJECT OF EXPERIMENT: THERE WERE SIX SEPARATE EXPERIMENTS. THE OBJECTIVE OF ALL EXPERIMENTS WERE TO IMPROVE HEALTH AND OR EDUCATION THROUGH SATELLITES.

ABSTRACT: THE HEALTH/EDUCATION TELECOMMUNICATIONS (HET) EXPERIMENT INVOLVED SIX DIFFERENT EXPERIMENTS TO TEST VARIOUS EDUCATIONAL AND HEALTH APPLICATIONS OF COMMUNICATIONS SATELLITES. THE HET EXPERIMENT ON ATS-6 WAS OPERATED AND CONTROLLED FROM A NETWORK COORDINATION CENTER IN DENVER, COLO., WHICH INCLUDED A 4- AND 6-GHZ EARTH STATION. THE HET EXPERIMENT USED REMOTE EARTH TERMINALS WITH 3-M-DIAMETER DISHES HAVING A 35 DB GAIN AT 2.5 GHZ. IN ADDITION, COMPREHENSIVE TERMINALS OPERATING AT BOTH C-BAND AND S-BAND WERE USED FOR COMMUNICATIONS WITH ALASKA. THE TOTAL NETWORK INVOLVED A COMPLEX OF SATELLITE AND LAND LINKS AT C-BAND, S-BAND, AND VERY HIGH FREQUENCY, USING THE ATS-1, ATS-3, AND ATS-6 SATELLITES. THE NETWORK PERFORMANCE EXCEEDED EXPECTATIONS WITH REMOTE TERMINAL OPERATIONS EXHIBITING A PEAK-TO-PEAK SIGNAL TO WEIGHTED RMS NOISE RATIO OF 49 DB AT LEAST 99 PERCENT OF THE TIME.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; ATS-6; TELECOMMUNICATIONS SYSTEMS; SATELLITE RELAY; COMMUNICATIONS SATELLITE; ALASKA; HET EXPERIMENT

JOURNAL TITLE: IEEE TRANSACTIONS, VOL. AES-11, ISSUE 6, PAGES 1015-1032

UNIVERSITY OF DAYTON ACCESS NUMBER: 509

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DATE OF DOCUMENT/TYPE: APR 76 / TECHNICAL REPORT

TITLE OF DOCUMENT: TECHNICAL EVALUATION OF THE HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT.

AUTHOR: BRAUNSTEIN, JEAN

SPONSORING AGENCY: OFFICE OF TELECOMMUNICATIONS, DEPT. OF HEALTH, EDUCATION, AND WELFARE, WASHINGTON, D. C.

SATELLITE: ATS-6 EXPERIMENT PERIOD: JUL 74 - MAY 75

OBJECT OF EXPERIMENT: TO EVALUATE THE PERFORMANCE AND EFFECTIVENESS OF THE NET GROUND NETWORK AND TO PROVIDE GUIDELINES.

ABSTRACT: THIS EXPERIMENT ACTUALLY CONSISTED OF SIX EXPERIMENTS TESTING HEALTH AND EDUCATION APPLICATIONS OF A COMMUNICATION SPACECRAFT PRODUCING A BROADCAST OF COLOR TELEVISION DIRECTLY FROM SPACE TO OVER 120 LOW-COST RECEIVERS LOCATED IN REMOTE RURAL AREAS THROUGHOUT THE U.S. (INCLUDING ALASKA). FIVE DIFFERENT TYPES OF EARTH STATIONS CONSISTING OF 120 VIDEO RECEIVE TERMINALS, 51 TELEPHONE TRANSMITTERS AND EIGHT VIDEO ORIGINATING TERMINALS OF THREE DIFFERENT TYPES. ACTUAL PERFORMANCE OF THE EQUIPMENT AS MEASURED IN THE FIELD WAS SHOWN TO EQUAL OR EXCEED PREDICTED VALUES.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; NET EXPERIMENT; RURAL AREAS; SATELLITE TELEVISION; TELECOMMUNICATION; COLOR TELEVISION; DOMESTIC SATELLITE COMMUNICATIONS SYSTEMS; REMOTE REGIONS; SPACECRAFT COMMUNICATION; VIDEO COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 510

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DATE OF DOCUMENT/TYPE: DEC 74 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-6 HEALTH EXPERIMENT.

AUTHOR: WASHINGTON, UNIV.

SPONSORING AGENCY: LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS, BETHESDA, MD.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO IMPLEMENT SATELLITE-RELATED COMMUNICATIONS IN HEALTH CARE AND MEDICAL EDUCATION WITHIN THIS VAST NORTHWESTERN REGION.

ABSTRACT: THE REPORT DESCRIBES THE WORK PERFORMED BY THE INDIAN HEALTH SERVICE IN ALASKA AND THE WAMI (WASHINGTON-ALASKA-MONTANA-IDAHO) EXPERIMENT IN REGIONALIZED MEDICAL EDUCATION AT THE UNIVERSITY OF WASHINGTON, TO DEVELOP THE PROGRAMS, SYSTEMS, AND INSTRUMENTATION REQUIRED TO IMPLEMENT SATELLITE-RELATED COMMUNICATIONS IN HEALTH CARE AND MEDICAL EDUCATION WITHIN THIS VAST NORTHWESTERN REGION.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; TELEMEDICINE; MEDICAL EDUCATION; TELECOMMUNICATIONS; ALASKA; WAMI; HEALTH CARE SERVICES

UNIVERSITY OF DAYTON ACCESS NUMBER: 511

DATE OF DOCUMENT/TYPE: OCT 1975 / REFERENCE BOOK

TITLE OF DOCUMENT: CTS REFERENCE BOOK

AUTHOR: KENNARD, J. G.; NICE, A. M.

SPONSORING AGENCY: LEWIS RESEARCH CENTER, CLEVELAND, OHIO

SATELLITE: CTS

ABSTRACT: THE OBJECTIVE OF THE CTS (COMMUNICATIONS TECHNOLOGY SATELLITE) PROGRAM IS TO ADVANCE THE TECHNOLOGY OF BOTH SPACECRAFT-MOUNTED AND RELATED GROUND-BASED COMPONENTS AND SYSTEMS APPLICABLE TO HIGH-FLUX-POWER SATELLITES. IN ORDER TO ACHIEVE THIS OBJECTIVE, THE SPACECRAFT WILL DEMONSTRATE NEW TECHNOLOGY APPLICATIONS AND CONDUCT EXPERIMENTS ON COMPONENTS AND SYSTEMS THAT WILL BE APPLICABLE TO FUTURE COMMERCIAL COMMUNICATIONS SATELLITES. THE PROGRAM WILL ALSO INCLUDE COMMUNICATIONS EXPERIMENTS WITH USER AGENCIES, UNIVERSITIES, AND INDUSTRIAL GROUPS IN THE UNITED STATES AND CANADA.

SUBJECT: CTS REFERENCE BOOK

KEYWORDS: COMMUNICATIONS TECHNOLOGY SATELLITE; CTS PROGRAM; RESEARCH PROJECTS; RADIO RELAY SYSTEMS; TERMINAL FACILITIES; SYNCHRONOUS SATELLITES

TECHNICAL REPORT NUMBER: NASA-TM-X-71624

UNIVERSITY OF DAYTON ACCESS NUMBER: 512

DATE OF DOCUMENT/TYPE: AUG 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: TWENTY AND THIRTY GHZ MILLIMETER WAVE EXPERIMENTS WITH THE ATS-6 SATELLITE.

AUTHOR: IPP, JTO, L. J.

SPONSORING AGENCY: N GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

SATELLITE: ATS-6 EXPERIMENT PERIOD: JUN 74 - JUN 75

OBJECT OF EXPERIMENT: TO MEASURE AND EVALUATE THE PROPAGATION CHARACTERISTICS OF SPACE-TO-EARTH LINKS CENTERED AT 20 GHZ AND 30 GHZ.

ABSTRACT: THE ATS-6 MILLIMETER WAVE EXPERIMENT, PROVIDED THE FIRST DIRECT MEASUREMENTS OF 20 AND 30 GHZ EARTH-SPACE LINKS FROM AN ORBITING SATELLITE. STUDIES AT ELEVEN LOCATIONS IN THE CONTINENTAL UNITED STATES WERE DIRECTED AT AN EVALUATION OF RAIN ATTENUATION EFFECTS, SCINTILLATIONS, DEPOLARIZATION, SITE DIVERSITY, COHERENCE BANDWIDTH, AND ANALOG AND DIGITAL COMMUNICATIONS TECHNIQUES. METHODS OF ATTENUATION PREDICTION WITH RADARS, RAIN GAGES, AND RADIO METERS WERE DEVELOPED AND COMPARED WITH THE DIRECTLY MEASURED ATTENUATION. INITIAL DATA RESULTS OF THE ATS-6 MILLIMETER WAVE EXPERIMENT FROM THE MAJOR PARTICIPATING ORGANIZATIONS ARE PRESENTED.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-6; ATMOSPHERIC ATTENUATION; MILLIMETER WAVES; PULSE COMMUNICATIONS; RADIO ATTENUATION; RADIO COMMUNICATIONS; RAIN GAGES.

TECHNICAL REPORT NUMBER: X-951-75-211 UNIVERSITY OF DAYTON ACCESS NUMBER: 513

DATE OF DOCUMENT/TYPE: OCT 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: PRECISE TIME DISSEMINATION EXPERIMENT USING THE ATS-1 SATELLITE.

AUTHOR: CHI, A. R.

SPONSORING AGENCY: DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, 800 INDEPENDENCE AVE., SW, WASHINGTON, D. C., 20591

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: A PRECISE TIME TRANSFER EXPERIMENT USING ATS-1 AS A LINK BETWEEN A MASTER AND A SLAVE STATION TO ACHIEVE AN ACCURACY OF 50 NANOSECONDS ONE SIGMA.

ABSTRACT: A PRECISE TIME TRANSFER EXPERIMENT USING THE APPLICATION TECHNOLOGY SATELLITE (ATS) AS A LINK BETWEEN A MASTER AND SLAVE STATION ACHIEVED AN ACCURACY OF 50 NANOSECONDS ONE SIGMA. THE TECHNIQUE IS INHERENTLY CAPABLE OF TRANSFERRING PRECISE TIME ON A REAL TIME BASIS FROM A MASTER TIME STATION TO A NUMBER OF SLAVE STATIONS.

SUBJECT: DATA TRANSMISSION

KEYWORDS: PRECISE TIME TRANSFER; ATS-1; PORTABLE CLOCK.

TECHNICAL REPORT NUMBER: FAA-RD-76-135 UNIVERSITY OF DAYTON ACCESS NUMBER: 514

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DATE OF DOCUMENT/TYPE: AUG 75 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ATS-6 SATELLITE EVALUATION.  
AUTHOR: DOHNER, C. W.; CULLEN, T. J.; ZINSER, E. A.  
SPONSORING AGENCY: LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATION, NATIONAL LIBRARY OF MEDICINE, BETHESDA, MARYLAND, 20014

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO PROVIDE EVALUATION INFORMATION ON THE USE OF ATS-6 IN FULL DUPLEX VIDEO AND AUDIO COMMUNICATION FOR MEDICAL EDUCATION AT SITES REMOTE FROM AN ESTABLISHED MEDICAL SCHOOL.

ABSTRACT: ORME (OFFICE OF RESEARCH IN MEDICAL EDUCATION) EVALUATED INFORMATION ON THE USE OF THE ATS-6 IN FULL DUPLEX VIDEO AND AUDIO COMMUNICATION FOR MEDICAL EDUCATION AT SITES REMOTE FROM AN ESTABLISHED MEDICAL SCHOOL. THIS REPORT DESCRIBES ORME'S EFFORTS TO DEVELOP A DESIGN THAT WOULD INCORPORATE APPROPRIATE EVALUATION METHODS AND MECHANISMS TO GATHER PERTINENT INFORMATION TO ASSESS THE EFFECTIVENESS OF THIS SYSTEM IN MEDICAL EDUCATION. THE EMPHASIS IS PLACED ON USER ACCEPTANCE, TECHNICAL FEASIBILITY, AND INTERACTION CHARACTERISTICS OF THE COMMUNICATION SYSTEM. USER ACCEPTANCE, WAS DETERMINED TO BE HIGH. STUDENTS MASTERED COGNITIVE KNOWLEDGE AT LEAST AS WELL USING THIS MEDIA AS IN REGULAR INSTRUCTION. THE INFERENCE ORME DRAWS FROM THIS STUDY IS THAT THE DESIRABILITY TO UTILIZE THIS MEDIA MAKES IT APPROPRIATE TO CONTINUE DEVELOPMENT OF THE TECHNOLOGY FOR A REGIONALIZED MEDICAL EDUCATION PROGRAM SUCH AS WAMI.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: SCIENTIFIC SATELLITES; SATELLITES COMMUNICATION; EDUCATION; MEDICINE; EVALUATION.

TECHNICAL REPORT NUMBER: NLM-LHC-75-02

UNIVERSITY OF DAYTON ACCESS NUMBER: 515

DATE OF DOCUMENT/TYPE: DECEMBER 1976 / PROPOSAL

TITLE OF DOCUMENT: PHS-CTS EXPERIMENTS PLAN

AUTHOR: RIFKIN, M.

SATELLITE: CTS

ABSTRACT: THIS NTR CONTAINS DESCRIPTIONS OF THE PUBLIC HEALTH SERVICE/COMMUNICATIONS TECHNOLOGY SATELLITE (PHS/CTS OR CTS) EXPERIMENTS. THE CTS IS A JOINT CANADIAN-U.S. PROJECT, AND THE PHS-CTS SET OF EXPERIMENTS IS ONE OF SEVERAL U.S. EXPERIMENTS FOR THE SATELLITE. THE PURPOSE OF THIS DOCUMENT IS TO PRESENT A SUMMARY THAT WILL INFORM BOTH DEPARTMENT OF HEALTH, EDUCATION AND WELFARE AGENCIES AND INDIVIDUAL EXPERIMENT TEAMS OF THE SUBJECT MATTER, OBJECTIVES AND GENERAL DESIGN OF THE VARIOUS PHS/CTS EXPERIMENTS. SUMMARY INFORMATION INCLUDES IDENTIFICATION OF PARTICIPATING ORGANIZATIONS, THE MODES OF COMMUNICATIONS TO BE USED, AND THE GENERAL SCHEDULE FOR EACH EXPERIMENT. APPENDIX A CONTAINS A SYSTEM DESCRIPTION OF CTS. APPENDIX B GIVES DETAILS ON THE FORMAT USED IN THE SUMMARIES.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: CTS; SATELLITE; HEALTH; DENTISTRY; DIETETICS; WAMI

TECHNICAL REPORT NUMBER: NTR 7493

UNIVERSITY OF DAYTON ACCESS NUMBER: 516

DATE OF DOCUMENT/TYPE: 2-4 JUN 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: INFORMING THE PUBLIC OF STS- SPACELAB BENEFITS- A CASE HISTORY.

AUTHOR: CARNAHAN, C. E.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO INFORM PUBLIC ABOUT SATELLITE COMMUNICATIONS TECHNOLOGY.

ABSTRACT: THE HEALTH/EDUCATION TELLCOMMUNICATIONS EXPERIMENTS CARRIED OUT BY ATS-6 PROVIDE A VARIETY OF TELEVISION PROGRAMS RANGING FROM EDUCATIONAL COURSES TO MEDICAL EXPERIMENTS TO SMALL, LOW-COST ANTENNA/RECEIVERS IN REMOTE OR SPARSELY POPULATED AREAS. TO INFORM THE PUBLIC OF THE SUCCESS OF THE ATS-6 TELEVISION TRANSMISSION, A MOBILE RECEIVING UNIT WAS BUILT. THE UNIT TOURS THE UNITED STATES DEMONSTRATING SATELLITE COMMUNICATION TECHNOLOGY.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; COMMUNICATIONS TECHNOLOGY SATELLITE; NET EXPERIMENT; REMOTE REGIONS; SATELLITE TELEVISION; SPACELAB; DOMESTIC SATELLITE COMMUNICATIONS SYSTEMS; EDUCATIONAL TELEVISION

JOURNAL TITLE: AIAA

UNIVERSITY OF DAYTON ACCESS NUMBER: 517

DATE OF DOCUMENT/TYPE: 30 SEP TO 5 OCT 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 (UPGRADING THE LIFE STYLE OF MILLIONS OF PEOPLE)

AUTHOR: THOLE, JOHN M.; DORNBRAND, HARRY

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE FEASIBILITY OF RELAYING HIGH-QUALITY SIGNALS FROM A SATELLITE TO SIMPLE, INEXPENSIVE GROUND RECEIVERS.

ABSTRACT: THE PRIMARY OBJECTIVE OF THE ATS-6 IS TO DEMONSTRATE THE FEASIBILITY OF OPERATING A HIGH-POWERED GEOSYNCHRONOUS COMMUNICATIONS SATELLITE CAPABLE OF RELAYING COLOR TV AND OTHER HIGH-QUALITY SIGNALS ON MULTIPLE FREQUENCIES TO RELATIVELY SIMPLE AND INEXPENSIVE GROUND RECEIVERS. SUCCESS IS PREDICTED FOR MOST OF THE EXPERIMENTS CARRIED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: ATS-6; COMMUNICATION SATELLITES; SATELLITE NETWORKS; SATELLITE TELEVISION; TECHNOLOGY UTILIZATION; COLOR TELEVISION; DATA LINKS; EDUCATIONAL TELEVISION; METEOROLOGICAL SATELLITES; SATELLITE DESIGN

JOURNAL TITLE: AIAA

UNIVERSITY OF DAYTON ACCESS NUMBER: 518

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DATE OF DOCUMENT/TYPE: MAR 75 / TECHNICAL REPORT  
TITLE OF DOCUMENT: TELECOMMUNICATIONS TECHNOLOGY AND RURAL EDUCATION IN THE UNITED STATES.  
AUTHOR: PERRINE, J.  
SATELLITE: ATS-6  
OBJECT OF EXPERIMENT: TO EXAMINE FROM THE POINT OF VIEW OF WHETHER TELECOMMUNICATIONS TECHNOLOGY CAN AUGMENT THE DEVELOPMENT OF RURAL EDUCATION.  
ABSTRACT: THE RURAL SECTOR OF THE US IS EXAMINED FROM THE POINT OF VIEW OF WHETHER TELECOMMUNICATIONS TECHNOLOGY CAN AUGMENT THE DEVELOPMENT OF RURAL EDUCATION. MIGRATORY FARM WORKERS AND AMERICAN INDIANS WERE THE TARGET GROUPS WHICH WERE EXAMINED AS EXAMPLES OF GROUPS WITH SPECIAL NEEDS IN RURAL AREAS. THE GENERAL RURAL POPULATION AND THE TARGET GROUPS WERE EXAMINED TO IDENTIFY PROBLEMS AND TO ASCERTAIN SPECIFIC EDUCATIONAL NEEDS. EDUCATIONAL PROJECTS UTILIZING TELECOMMUNICATIONS TECHNOLOGY IN TARGET GROUP SETTINGS WERE DISCUSSED. LARGE SCALE REGIONAL ATS-6 SATELLITE-BASED EXPERIMENTAL EDUCATIONAL TELECOMMUNICATIONS PROJECTS WERE DESCRIBED. COSTS AND ORGANIZATIONAL FACTORS WERE ALSO EXAMINED FOR LARGE SCALE RURAL TELECOMMUNICATIONS PROJECTS.  
SUBJECT: EDUCATIONAL APPLICATIONS  
KEYWORDS: EDUCATION; RURAL AREAS; TELECOMMUNICATION; ABORIGINES; ATS-6; MIGRATION; MINORITIES

UNIVERSITY OF DAYTON ACCESS NUMBER: 519

DATE OF DOCUMENT/TYPE: MAR 77 / NEWSPAPER ARTICLE  
TITLE OF DOCUMENT: NASA ACTIVITIES  
AUTHOR: UNKNOWN  
SPONSORING AGENCY: NASA-AGENCY FOR INTERNATIONAL DEVELOPMENT  
SATELLITE: ATS-6  
OBJECT OF EXPERIMENT: TO DEMONSTRATE TO THE PEOPLE OF DEVELOPING NATIONS HOW SPACE TECHNOLOGY CAN IMPROVE THEIR WAY OF LIFE.  
ABSTRACT: THIS ARTICLE DESCRIBES THE COOPERATION BETWEEN NASA AND THE AGENCY FOR INTERNATIONAL DEVELOPMENT (AID). ATS-6 WAS USED TO BROADCAST COLOR TV TO DEVELOPING NATIONS. FILMS AND LIVE COVERAGE WERE TELECAST TO 27 NATIONS.  
SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
KEYWORDS: ATS-6; AID; SATELLITE; DEVELOPING NATIONS; TWO-WAY BROADCASTS  
JOURNAL TITLE: VOL. 8, ISSUE 3, PAGES 2

UNIVERSITY OF DAYTON ACCESS NUMBER: 520

DATE OF DOCUMENT/TYPE: OCT 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: DOLLARS VS SATELLITES

AUTHOR: RUBINSTEIN, ELLIS

ABSTRACT: THIS ARTICLE IS A HISTORY OF HOW AND WHY NASA GOT OUT OF THE COMMUNICATIONS SATELLITE BUSINESS  
BASED ON INTERVIEWS WITH NASA PERSONNEL.

SUBJECT: BROADCASTING HISTORY

KEYWORDS: ATS-6; SATELLITE; TELECOMMUNICATIONS; NASA; RESEARCH; BUDGET

JOURNAL TITLE: IEEE SPECTRUM

UNIVERSITY OF DAYTON ACCESS NUMBER: 521

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DATE OF DOCUMENT/TYPE: DEC 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: COMING: THE ERA OF TELEMEDICINE

AUTHOR: ALLAN, R.

SATELLITE: ATS-11; ATS-3; ATS-6

ABSTRACT: THIS ARTICLE CONTAINS A BRIEF HISTORY OF THE USE OF TELECOMMUNICATIONS. TELEMEDICAL SYSTEMS ARE DESCRIBED, INCLUDING MICROWAVE AND TELEPHONE TRANSMISSION. EVALUATION OF STATE OF TECHNOLOGY AND COST EFFECTIVENESS OF TELEMEDICAL SYSTEMS.

SUBJECT: MEDICAL/HEALTH APPLICATIONS HISTORY

KEYWORDS: ATS; TELEMEDICINE; TELECOMMUNICATIONS; HEALTH CARE; STARPAHC; INDIAN; HAWAII; ALASKA

JOURNAL TITLE: IEEE SPECTRUM

UNIVERSITY OF DAYTON ACCESS NUMBER: 522

DATE OF DOCUMENT/TYPE: DEC 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: HEALTH CARE AND EDUCATION: ON THE THRESHOLD OF SPACE

AUTHOR: FEINER, ALBERT

SATELLITE: ATS-1; ATS-6

OBJECT OF EXPERIMENT: TO DELIVER AUDIO AND VIDEO SATELLITE COMMUNICATION FOR HEALTH CARE AND EDUCATION IN ALASKA.

ABSTRACT: THIS ARTICLE OUTLINES VARIOUS STAGES OF THE ALASKA HEALTH CARE AND EDUCATION EXPERIMENT. THE ATS-1 MEDICAL NETWORK IS DISCUSSED. AS IS THE ATS-6 EXPERIMENT. TECHNICAL REQUIREMENTS FOR THE ATS-6 ARE GIVEN. ALSO INCLUDED IS A DISCUSSION OF SATELLITE EARTH STATIONS.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; ATS-6; HEALTH CARE; EDUCATIONS; TELEMEDICINE; TELECOMMUNICATION; ALASKA; INDIAN HEALTH SERVICE

JOURNAL TITLE: SCIENCE, VOL. 186, PAGES 1178

UNIVERSITY OF DAYTON ACCESS NUMBER: 523

DATE OF DOCUMENT/TYPE: MAY 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: STEPPING UP TO A PUBLIC SERVICE SATELLITE CONSORTIUM

AUTHOR: HUPE, H. H.

ABSTRACT: DISCUSSION OF A PUBLIC SERVICE SATELLITE CONSORTIUM. WHAT TYPE OF SATELLITE WOULD BEST SUIT THE NEEDS OF USERS IS DISCUSSED AS IS POTENTIAL FUNDING.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: TELECOMMUNICATION; SATELLITE; PUBLIC SERVICE SATELLITE CONSORTIUM; USER ORGANIZATION; FINANCE

JOURNAL TITLE: ASTRONAUTICS & AERONAUTICS, PAGES 59-61

UNIVERSITY OF DAYTON ACCESS NUMBER: 524

DATE OF DOCUMENT/TYPE: JAN 75 / JOURNAL ARTICLE  
TITLE OF DOCUMENT: COST-EFFECTIVENESS OF AN INTERACTIVE BROADCAST SATELLITE  
AUTHOR: HUPE, H. H.

ABSTRACT: THIS ARTICLE DISCUSSES THE COST-EFFECTIVENESS OF AN INTERACTIVE BROADCAST SATELLITE BASED ON KNOWN COSTS OF RELEVANT AIR HEALTH AND EDUCATION TELECOMMUNICATIONS EQUIPMENT. IN ADDITION, THE DIFFICULTY OF MANAGING A TWO-WAY INTERACTIVE SYSTEM IS DISCUSSED. THE AUTHOR CONCLUDES THAT INTERACTIVE BROADCAST SATELLITES ARE RELATIVELY EXPENSIVE, ESPECIALLY WHEN VIDEO IS INVOLVED.

SUBJECT: VOICE COMMUNICATIONS BACKGROUND

KEYWORDS: ATS; SATELLITE; COST-EFFECTIVENESS; FEEDBACK; VIDEO FEEDBACK; TELECOMMUNICATIONS; INTERACTIVE; COSTS; AUDIO FEEDBACK; CONFERENCING

JOURNAL TITLE: ASTRONAUTICS & AERONAUTICS, PAGES 63-67

UNIVERSITY OF DAYTON ACCESS NUMBER: 525

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DATE OF DOCUMENT/TYPE: MAR 77 / CORRESPONDENCE  
TITLE OF DOCUMENT: PUBLIC SERVICE SATELLITE CONSORTIUM  
AUTHOR: UNKNOWN

ABSTRACT: CORRESPONDENCE CONCERNING INFORMATION ON THE PUBLIC SERVICE SATELLITE CONSORTIUM. INCLUDED IS A LIST OF MEMBER ORGANIZATIONS AND TWO COPIES OF THE CONSORTIUM NEWSLETTER.

SUBJECT: BACKGROUND

KEYWORDS: ATS; SATELLITE; PUBLIC SERVICE; CONSORTIUM; PSSC; USERS

UNIVERSITY OF DAYTON ACCESS NUMBER: 526

DATE OF DOCUMENT/TYPE: 21 JUL 75 / JOURNAL ARTICLE  
TITLE OF DOCUMENT: EVALUATION OF SATELLITE COMMUNICATION FOR TEACHING BASIC SCIENCE AND CLINICAL MEDICINE  
AUTHOR: GONNEF, L. W.; ZINSER, E.; CULLEN, T.  
SATELLITE: ATS-6

ABSTRACT: THE EVALUATION PLAN AND PRELIMINARY RESULTS ARE REPORTED FOR THE ATS-6 SATELLITE INTERACTIVE TELECOMMUNICATION PROGRAM FOR TEACHING AT SITES REMOTE FROM AN ESTABLISHED MEDICAL SCHOOL. THE TECHNICAL ASPECTS OF THE SYSTEM WERE SEEN AS QUITE ADEQUATE. IN THE FAIRBANKS BROADCASTS ANALYZED, THE AVERAGE NUMBER OF INTERACTIONS RANGED FROM 1.49 TO 2.60 PER MINUTE. NINETY PERCENT OF THE INTERACTION FLOUED ACROSS THE SATELLITE DURING OMAK TRANSMISSIONS. OMAK PARTICIPANTS DIRECTED A HIGHER PERCENTAGE OF THE COMMUNICATION IN STUDENT/RESIDENT PROGRAMS (70%) THAN IN FACULTY CONTINUING EDUCATION PROGRAMS (59%). USER ACCEPTANCE OF THE SYSTEM WAS DETERMINED TO BE VERY HIGH. PARTICIPANTS WITH FREQUENT EXPOSURE TO THE SATELLITE MODALITY TENDED TO HAVE POSITIVE REACTION.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS  
KEYWORDS: ATS-6; TELECOMMUNICATIONS; SATELLITE; WAHI; TELEMEDICINE; EDUCATION; OMAK; ALASKA; WASHINGTON  
JOURNAL TITLE: AMER. INST. OF AERONAUTICS AND ASTRONAUTICS PAPER, PAGES 15

UNIVERSITY OF DAYTON ACCESS NUMBER: 527

DATE OF DOCUMENT/TYPE: JUN 74 / JOURNAL ARTICLE  
TITLE OF DOCUMENT: APPALACHIAN TEACHERS STUDY VIA ATS-6  
AUTHOR: UNKNOWN  
SPONSORING AGENCY: HEW  
SATELLITE: ATS-6  
OBJECT OF EXPERIMENT: INSERVICE TRAINING OF TEACHERS IN APPALACHIA

ABSTRACT: TEACHER TRAINING VIA SATELLITE WAS PRODUCED BY THE UNIVERSITY OF KENTUCKY. AREA IN WHICH TERMINALS WERE LOCATED IS GIVEN, INCLUDING A MAP OF APPALACHIA. COST OF THE PROJECT IS OUTLINED AND SOME OF THE BENEFITS OF THE PROJECT ARE GIVEN.

SUBJECT: EDUCATIONAL APPLICATIONS  
KEYWORDS: ATS-6; SATELLITE; APPALACHIA; EDUCATION; TEACHERS; ARC; TELECOMMUNICATION  
JOURNAL TITLE: APPALACHIA, VOLUME 7, ISSUE 6, PAGES 1-10

UNIVERSITY OF DAYTON ACCESS NUMBER: 528

DATE OF DOCUMENT/TYPE: AUG 74 / TECHNICAL MEMORANDUM  
TITLE OF DOCUMENT: REMOTELY CONTROLLED AUTOMATIC DATA COLLECTION SYSTEM.  
AUTHOR: ANDERSON, R. E.  
SPONSORING AGENCY: GENERAL ELECTRIC  
SATELLITE: ATS-5; ATS-6

ABSTRACT: THIS PAPER DESCRIBES IN GENERAL TERMS A REMOTELY CONTROLLED AUTOMATIC DATA COLLECTION SYSTEM. THE SYSTEM COLLECTS, STORES AND PREPROCESSES DATA AT REMOTE SITES AND SENDS IT BACK TO A CENTRAL DATA COLLECTION FACILITY. SYSTEM HARDWARE SPECIFICATIONS ARE GIVEN AND SOFTWARE FUNCTION OUTLINED.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-5; ATS-6; L-BAND; DATA COLLECTION; REMOTE PLATFORM; INTERROGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 529

DATE OF DOCUMENT/TYPE: 77 / REQUEST FOR USE OF ATS SATELLITE

TITLE OF DOCUMENT: ATS USER FROM 1966-77

AUTHOR: UNKNOWN

SATELLITE: ATS-1; ATS-3; ATS-5; ATS-6

EXPERIMENT PERIOD: 1966-77

ABSTRACT: THIS IS A LOG OF THE EXPERIMENTS PERFORMED ON THE ATS SATELLITES FROM 1966 TO 1977. ORGANIZATION, INVESTIGATOR, MAILING ADDRESS AND A BRIEF DESCRIPTION OF EXPERIMENT ARE GIVEN.

SUBJECT: HISTORICAL

KEYWORDS: ATS; SATELLITE; TELECOMMUNICATION; EDUCATION; MEDICINE; TELEMEDICINE; MARAD; MARITIME; BIOMEDICAL; OCEANOGRAPHY; L-BAND; TIME DISSEMINATION; BROADCASTING; PEACESAT; ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 530

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DATE OF DOCUMENT/TYPE: JUL 75 / PAPER

TITLE OF DOCUMENT: HEALTH CARE IN ALASKA VIA SATELLITE

AUTHOR: WILSON, M. R.; BRADY, C.

SPONSORING AGENCY: U.S. PUBLIC HEALTH SERVICE, ROCKVILLE, MARYLAND

SATELLITE: ATS-6

EXPERIMENT PERIOD: JUN 74 - JUN 75

OBJECT OF EXPERIMENT: TO TEST AND ASSESS USE OF VIDEO AND NARROWBAND COMMUNICATIONS IN ASSISTING PHYSICIANS. TO EVALUATE THE U.S. OF INTERACTIVE VIDEO FOR CONSUMER EDUCATION.

ABSTRACT: THE INDIAN HEALTH SERVICE OF ALASKA HAS DEVELOPED HEALTH DELIVERY SYSTEMS INVOLVING PARAMEDICAL OUTREACH PERSONNEL (COMMUNITY HEALTH AIDES, PHYSICIAN'S ASSISTANTS, AND NURSES). AN EXPERIMENT WAS CONDUCTED IN WHICH VIDEO TRANSMISSION VIA ATS-6 ENABLED PHYSICIANS, INCLUDING SPECIALISTS, TO PROVIDE SUPERVISION, GUIDANCE, AND CONSULTATIVE AND DIAGNOSTIC SUPPORT TO PARAMEDICAL PERSONNEL IN REMOTE VILLAGES. THE VIDEO SYSTEM WAS SUPPORTED BY BIOLOGICAL TELEMETRY AND A COMPREHENSIVE PATIENT DATA SYSTEM. THE ANALYSIS OF THE RESULTS THUS FAR INDICATES THAT BROADBAND COMMUNICATIONS HAVE THE POTENTIAL TO BE VERY BENEFICIAL TO HEALTH CARE DELIVERY IN TRULY ISOLATED REGIONS.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; ALASKA; TELECOMMUNICATIONS; HEALTH; TELEMEDICINE

JOURNAL TITLE: AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS CONFERENCE ON COMMUNICATIONS SATELLITES

UNIVERSITY OF DAYTON ACCESS NUMBER: 531

DATE OF DOCUMENT/TYPE: NOV 76 / NEWSPAPER ARTICLE

TITLE OF DOCUMENT: ATS-6 COMING HOME

AUTHOR: UNKNOWN

SPONSORING AGENCY: NASA HEADQUARTERS, WASHINGTON, D.C.

SATELLITE: ATS-6

ABSTRACT: THIS ARTICLE GIVES INFORMATION ON THE RETURN TO THE U.S. OF ATS-6. ALSO, INCLUDED IS A BRIEF DESCRIPTION OF THE INDIAN EXPERIMENT (SITE). AN ESTIMATE 5 MILLION PEOPLE VIEWED THESE PROGRAMS.

SUBJECT: BROADCASTING

KEYWORDS: ATS-6; TELECOMMUNICATIONS; COMMUNICATIONS; INDIA; SITE; SATELLITE

JOURNAL TITLE: NASA ACTIVITIES, VOL. 7, ISSUE 2, PAGES 3

UNIVERSITY OF DAYTON ACCESS NUMBER: 532

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: 1972 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE PROPOSED BRAZILIAN EDUCATIONAL SATELLITE EXPERIMENT

AUTHOR: POLCYN, K. A.

SATELLITE: ATS-3

ABSTRACT: THIS ARTICLE GIVES A FAIRLY DETAILED DESCRIPTION OF THE BRAZILIAN EDUCATIONAL SATELLITE EXPERIMENT (SACI) TO BEGIN IN THE SUMMER OF 1972. AN OUTLINE OF THE SACI EXPERIMENT IS INCLUDED. TYPE H HARDWARE IS DESCRIBED AND SOFTWARE AND PROGRAMMING COSTS ARE ESTIMATED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-3; SATELLITE; BROADCASTING; BRAZIL; SACI; TELECOMMUNICATION; TEACHER TRAINING

JOURNAL TITLE: EDUCATIONAL TECHNOLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 533

16-274

DATE OF DOCUMENT/TYPE: JULY 1973 / TECHNICAL REPORT

TITLE OF DOCUMENT: 1. FIRST YEAR MEDICAL USER DEMONSTRATIONS- 2. PACIFIC LIBRARY CONFERENCES- 3. BIOMEDICAL TRANSMISSION TESTS

AUTHOR: MCMAHON, J. I. HASKO, C.; OKA, E. J.

SPONSORING AGENCY: LISTER HILL NATIONAL CENTER BIOMEDICAL COMMUNICATIONS, NATIONAL LIBRARY OF MEDICINE, NATIONAL INSTITUTE OF HEALTH, U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO DEMONSTRATE MEDICAL AND HEALTH COMMUNICATIONS; LIBRARY CONFERENCES; AND FACSIMILE CAPABILITIES VIA SATELLITE

ABSTRACT: REPORTS COVER PILOT DEMONSTRATIONS IN MEDICAL AND HEALTH COMMUNICATIONS VIA SATELLITE. MEDICAL USER DEMONSTRATIONS IN THE TRUST TERRITORY OF THE PACIFIC ISLANDS AND AMERICAN SAMOA INCLUDE USE OF THE PEACESAT DEMONSTRATION SYSTEM AND THE NASA ATS-1 SATELLITE FOR DIAGNOSTIC CONSULTING, MEDICAL RESEARCH AND NURSING EDUCATION.  
A REPORT OF A SERIES OF PACIFIC LIBRARY CONFERENCES INVOLVING LIBRARY PERSONNEL FROM FIVE NATIONS, VIA SATELLITE, INCLUDES A TRANSCRIPT WHICH DETAILS DESIRED AREAS OF INTERLIBRARY COMMUNICATION IN HAWAII, TRUST TERRITORY, FIJI, NEW ZEALAND AND PAPUA NEW GUINEA.  
TESTING OF TRANSMISSIONS OF ELECTROCARDIOGRAMS AND X-RAYS VIA SATELLITE FACSIMILE CAPABILITIES ARE DESCRIBED. THE STUDY WAS PREPARED TO ASSIST IN PLANNING FOR LONG DISTANCE HEALTH COMMUNICATIONS IN THE PACIFIC BASIN.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: TELECOMMUNICATIONS; COMMUNICATION NETWORKS; LIBRARIES; DOCUMENT CIRCULATION; MEDICAL SERVICES; PEACESAT; ATS-1

UNIVERSITY OF DAYTON ACCESS NUMBER: 536

DATE OF DOCUMENT/TYPE: 74 / REPORT

TITLE OF DOCUMENT: THE CASE AGAINST SATELLITES

AUTHOR: UNKNOWN

SPONSORING AGENCY: THE NETWORK PROJECT, 101 EAFI HALL, COLUMBIA UNIVERSITY, NEW YORK, NY

ABSTRACT: THE REPORT ARGUES AGAINST CORPORATE CONTROL OF SATELLITE COMMUNICATIONS SYSTEM. THE POSITION SEEMS TO BE THAT THE PUBLIC SHOULD CONTROL ANY MEDIA AS INFLUENTIAL AS SATELLITE TELECOMMUNICATIONS. A PANEL DISCUSSION ON SATELLITE COMMUNICATIONS IS TRANSCRIBED. PARTICIPANTS ARE FROM GOVERNMENT, BUSINESS AND THE PUBLIC SECTOR.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: ATS; SATELLITE; BROADCASTING; PROPAGANDA; TELECOMMUNICATION; MILITARY; PUBLIC; MATRIX; DOMESTIC; INFORMATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 535

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: SEP 76 / PAPER

TITLE OF DOCUMENT: SEARCH AND RESCUE TECHNOLOGY EXPERIMENTS WITH A GEOSTATIONARY SATELLITE

AUTHOR: ANDERSON, P. E.; BRISKEN, A. F.

SPONSORING AGENCY: GENERAL ELECTRIC CO., SCHENECTADY, NY

SATELLITE: ATS-6

ABSTRACT: THIS PAPER WAS PRESENTED AT THE 1976 MEETING OF THE NATIONAL ASSOCIATION OF SEARCH AND RESCUE (NASAR). THE PAPER DESCRIBES EXPERIMENTS USING SATELLITES FOR SEARCH AND RESCUE THAT HAVE BEEN PERFORMED BY GENERAL ELECTRIC. EXPERIMENTS SHOW THAT SMALL HAND-CARRIED EQUIPMENT CAN BE USED FOR THIS PURPOSE. A PICTURE OF SUCH A SYSTEM IS INCLUDED.

SUBJECT: SEARCH AND RESCUE

KEYWORDS: ATS-6; SATELLITE; SEARCH; RESCUE; RANGING; NASAR

UNIVERSITY OF DAYTON ACCESS NUMBER: 536

E-274

DI OF DOCUMENT/TYPE: OCT 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: USERS STARTING TO HOP ABOARD U.S. COMMUNICATIONS SATELLITES

AUTHOR: SKRUPSKI, S. E.

SATELLITE: ATS-6; CTS

ABSTRACT: THIS ARTICLE GIVES AN OVERVIEW OF SOME OF THE PROBLEMS THAT WILL ARISE AS MORE AND MORE PEOPLE USE SATELLITE COMMUNICATIONS. THE PROBLEMS OF MONOPOLY, FREQUENCY ATTENUATION, FREQUENCY CROWDING & SATELLITE DENSITY ARE DISCUSSED. THE CTS AND ATS-6 SATELLITES ARE MENTIONED. VARIOUS SATELLITE APPLICATIONS ARE DESCRIBED.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MARITIME TRAFFIC CONTROL NAVIGATION VOICE COMMUNICATIONS

KEYWORDS: SATELLITE; GEOSTATIONARY; ATS-6; CTS; BROADCASTING; WESTAR; COMMUNICATIONS; ATTENUATION; ANTENNA; P  
DS; MUSZAK; HARAD; TELECOMMUNICATIONS

JOURNAL TITLE: ELECTRONICS

UNIVERSITY OF DAYTON ACCESS NUMBER: 537

DATE OF DOCUMENT/TYPE: 75 / REPORT  
TITLE OF DOCUMENT: LEARNING THROUGH SATELLITE BROADCASTING  
AUTHOR: KRISHNA MOORTHY, P. V.  
SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO BRING EDUCATION TO BACKWOODS INDIA IN THE FORM OF TELEVISION PROGRAMMING.

ABSTRACT: THIS PAPER DEALS WITH SATELLITE INSTRUCTIONAL TELEVISION EXPERIMENT (SITE) CONDUCTED BY INDIA UTILIZING ATS-6. A RELATIVE DETAILED OUTLINE OF THE PLANNED EXPERIMENT IS GIVEN, INCLUDING VILLAGES, EQUIPMENT, PRETESTING, OBJECTIVES, AND EVALUATION.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; INDIA; TELEVISION; COMMUNICATION; SITE; EDUCATION; AGRICULTURE; HEALTH; FAMILY PLANNING

UNIVERSITY OF DAYTON ACCESS NUMBER: 538

DATE OF DOCUMENT/TYPE: DECEMBER 1976 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ATS-6 AND STATE TELECOMMUNICATIONS POLICY FOR RURAL ALASKA  
AUTHOR: PITTMAN, T.S.; OFVIK, J. H.  
SATELLITE: ATS-6

ABSTRACT: THIS PAPER PROPOSES THIRTEEN RECOMMENDATIONS ABOUT TELEVISION IN RURAL ALASKA'S EDUCATIONAL TV PART OF THE ATS-6 SATELLITE PROJECT IN 1974-75. THE STUDY RECOMMENDATIONS WERE BASED ON INFORMATION PROVIDED BY VILLAGE RESIDENTS, UTILIZATION AIDS, CONSUMER COMMITTEE MEMBERS, TEACHERS, PROGRAM DESIGNERS, PROGRAM PRODUCERS, AND MANAGERS OF THE PROJECT.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; ALASKA; HEALTH; EDUCATION; BIOMEDICAL; TELEVISION; NAPI

UNIVERSITY OF DAYTON ACCESS NUMBER: 539

E-278

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: OCT 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE INTERNATIONAL AGE IN SPACE.

AUTHOR: FEUTKIN, A. W.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: INTERNATIONAL COOPERATION IN SPACE PROGRAMS.

ABSTRACT: INTERNATIONAL COOPERATION IN SPACE PROGRAMS IS DISCUSSED. EARLY INTERNATIONAL EFFORTS, SUCH AS THE ESTABLISHMENT OF TRACKING STATION NETWORKS AND UTILIZATION OF COMMUNICATIONS AND WEATHER SATELLITES, ARE OUTLINED, AND THE APOLLO-SOYUZ TEST PROJECT AND THE SPACELAB-SHUTTLE PROJECT ARE CITED AS MAJOR COOPERATIVE VENTURES. THE ATS-6, HELOIS, AND ERTS PROJECTS - WHICH DEMONSTRATE THE IMPORTANCE OF INTERNATIONAL TIES TO THE SPACE PROGRAM - ARE DETAILED.

KEYWORDS: EUROPEAN SPACE PROGRAMS; INTERNATIONAL COOPERATION; NASA PROGRAMS; SPACE EXPLORATION; U.S.S.R. SPACE PROGRAM; APOLLO SOYUZ TEST PROJECT; ATS 6; HELIOS SATELLITES; LANDSAT SATELLITES; SATELLITE TELEVISION

JOURNAL TITLE: AIAA STUDENT JOURNAL, VOL. 12, PAGES 30-33

UNIVERSITY OF DAYTON ACCESS NUMBER: 540

DATE OF DOCUMENT/TYPE:

/ TECHNICAL REPORT

TITLE OF DOCUMENT:

APPLICATIONS TECHNOLOGY SATELLITE ADVANCED MISSION STUDY.

AUTHOR:

ROBINSON, D. L.

SPONSORING AGENCY:

NASA, WASHINGTON, D.C., 20546

OBJECT OF EXPERIMENT:

TO STUDY FOUR DIFFERENT SPACECRAFT CONFIGURATIONS.

ABSTRACT:

FOUR DIFFERENT SPACECRAFT CONFIGURATIONS WERE DEVELOPED FOR GEOSTATIONARY SERVICE AS A HIGH POWER COMMUNICATIONS SATELLITE. THE FIRST CONFIGURATION IS A THOR-DELTA LAUNCH INTO A LOW ORBIT WITH A SPIRAL ASCENT TO SYNCHRONOUS ALTITUDE BY ION ENGINE PROPULSION. THE SPACECRAFT IS EARTH ORIENTED WITH ROTATING SOLAR ARRAYS. CONFIGURATION #2 IS A DIRECT INJECTION ATLAS/CENTAUR/BURNER II VEHICLE WHICH WHEN IN ORBIT IS SUN-ORIENTED WITH A ROTATING TRANSPONDER TOWER. CONFIGURATIONS #3 AND #4 ARE TITAN IIIC LAUNCHES, AND ARE THEREFORE LARGER AND HEAVIER THAN CONFIGURATION #2. THEY ARE BOTH SUN-ORIENTED, WITH ROTATING TRANSPONDER TOWERS AND ARE DIRECTLY INJECTED INTO ORBIT. TECHNOLOGY DISCUSSED IN THIS REPORT INCLUDES HIGH POWER (UP TO 2 KW) TRANSMITTERS WITH COLLECTORS RADIATING HEAT DIRECTLY INTO SPACE, AND CONTOURED ANTENNA PATTERNS DESIGNED TO ILLUMINATE PARTICULAR EARTH REGIONS. THERE IS ALSO A REVIEW OF POTENTIAL USERS OF THE SERVICES WHICH CAN BE PERFORMED BY THIS TYPE SATELLITE IN SUCH AREAS AS INFORMATION NETWORKING, PUBLIC BROADCASTING AND EDUCATIONAL TELEVISION.

SUBJECT:

BROADCASTING

DATA TRANSMISSION

EDUCATIONAL APPLICATIONS

KEYWORDS:

COMMUNICATION SATELLITE; CONTOURED ANTENNA PATTERNS; HIGH POWER TRANSMITTERS

TECHNICAL REPORT NUMBER: CR 120873

UNIVERSITY OF DAYTON ACCESS NUMBER: 541

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DATE OF DOCUMENT/TYPE: APR 75 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: ATLANTIC TROPICAL CYCLONE CLASSIFICATIONS FOR 1974

AUTHOR: GABY, D. G.; COCHRAN, D. R.; LUSHINE, J. B.; PEARCE, S. C.; PIKE, A. C.; POTEAT, K. O.

SPONSORING AGENCY: NATIONAL ENVIRONMENTAL SATELLITE SERVICE, NOAA, WASHINGTON, D.C.

SATELLITE: ATS-3 EXPERIMENT PERIOD: 1974

OBJECT OF EXPERIMENT: ESTIMATES OF THE LOCATIONS AND MAXIMUM SUSTAINED WINDS (CLASSIFICATIONS) OF ALL NAMED TROPICAL CYCLONES.

ABSTRACT: ESTIMATES OF THE LOCATIONS AND MAXIMUM SUSTAINED WINDS (CLASSIFICATIONS) OF ALL NAMED TROPICAL CYCLONES IN THE NORTH ATLANTIC OCEAN, THE CARIBBEAN SEA, AND THE GULF OF MEXICO DURING 1974 WERE MADE USING THE TECHNIQUE DEVELOPED BY DVORAK. THIS TECHNIQUE WAS APPLIED TO PICTURES FROM THE SMS-1 (STATIONARY METEOROLOGICAL SATELLITE) AND ATS-3 (ADVANCED TECHNOLOGY SATELLITE) GEOSTATIONARY SATELLITES. THESE ESTIMATES WERE COMPARED WITH OTHER DATA TO ESTABLISH THE MEASURE OF ACCURACY ACHIEVED. THE RESULTS ARE PRESENTED TOGETHER WITH COMMENTS ON EXPECTED FUTURE PERFORMANCE.

SUBJECT: METEOROLOGY

KEYWORDS: MAXIMUM SUSTAINED WINDS; CENTRAL PRESSURES; CYCLONE LOCATIONS; HURRICANE SEASON; SATELLITE METEOROLOGISTS; NORTH ATLANTIC OCEAN; CARIBBEAN SEA; GULF OF MEXICO

UNIVERSITY OF DAYTON ACCESS NUMBER: 542

E-282

DATE OF DOCUMENT/TYPE: 21-23 JUL 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: A SATELLITE FOR HUMAN NEEDS.

AUTHOR: WHALEN, A. A. I JOHNSTON, W. A., JR.

SPONSORING AGENCY: NASA GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE DIRECT BROADCAST OF COLOR TELEVISION TO LOW COST TERMINALS IN REMOTE REGIONS OF THE UNITED STATES.

ABSTRACT: THE ATS-6 SATELLITE DEPLOYED A 9.1 METER (30 FOOT) PARABOLIC REFLECTOR ANTENNA WITH A TRANSPONDER THAT COVERED A FREQUENCY RANGE FROM VHF THROUGH C-BAND. THE HIGH RF GAINS OBTAINED WITH THE ANTENNA WERE TO BE USED FOR MANY DRAMATIC COMMUNICATIONS EXPERIMENTS, ONE OF WHICH WAS THE HEALTH/EDUCATION TELECOMMUNICATION EXPERIMENT (HET), A DEMONSTRATION OF DIRECT BROADCAST OF COLOR TELEVISION TO LOW COST TERMINALS IN REMOTE REGIONS OF THE UNITED STATES. MORE THAN 120 TERMINALS WITH 3-METER ANTENNAS WERE DEPLOYED IN ALASKA, WASHINGTON, THE ROCKY MOUNTAINS, AND APPALACHIA TO PROVIDE EDUCATIONAL AND HEALTH SERVICES TO SELECTED COMMUNITY CENTERS. AFTER 11 MONTHS OF NEARLY CONTINUOUS SERVICE, THE PERFORMANCE OF BOTH THE SATELLITE AND THE EXPERIMENT HAVE EXCEEDED ALL EXPECTATIONS.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS VIDEO COMMUNICATIONS

KEYWORDS: COMMUNICATIONS SATELLITE; EDUCATIONAL TELEVISION; PUBLIC HEALTH; DATA TRANSMISSION; VIDEO COMMUNICATIONS

JOURNAL TITLE: AIAA PAPER

UNIVERSITY OF DAYTON ACCESS NUMBER: 543

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DATE OF DOCUMENT/TYPE:

/ JOURNAL ARTICLE

TITLE OF DOCUMENT:

THE DEVELOPMENT OF THE PUBLIC SATELLITE CONSORTIUM: A HISTORY AND ANALYSIS OF TECHNICAL ALTERNATIVES

AUTHOR:

LUSIGNAN, D. B.; POTTER, J. G.; JANKY, J. M.

ABSTRACT:

THIS PAPER PRESENTS SOME OF THE MAJOR STEPS IN THE DEVELOPMENT OF THE PUBLIC SERVICE SATELLITE CONSORTIUM (PSSC), A NON-PROFIT ORGANIZATION WHOSE PURPOSE IS TO FOSTER THE SHARED USE OF SATELLITES AS A DISTRIBUTION MECHANISM FOR SOCIAL SERVICES IN THE AREAS OF HEALTH AND EDUCATION, FOR BOTH PUBLIC AND PRIVATE NON-PROFIT USERS. THE UTILITY OF A CONSORTIUM LIES IN ITS ABILITY TO AGGREGATE A LARGE NUMBER OF SMALL, DIVERSE USERS INTO A MARKET GROUP WHICH CAN THEN SHARE THE COSTS FOR THE SPACE SEGMENT AND TAKE ADVANTAGE OF THE ECONOMIES OF SCALE IN PROCUREMENT OF GROUND EQUIPMENT. A SUMMARY OF THE INITIAL TECHNICAL ANALYSIS OF THE ALTERNATIVES FOR BOTH THE SPACE SEGMENT AND THE GROUND SEGMENT EQUIPMENTS FOR SEVEN CLASSES OF SERVICE IS PRESENTED, ALONG WITH THOROUGH COST ESTIMATES. THE RECOMMENDED CONFIGURATION IN SPACE CONSISTS OF 20-W TRANSFONDERS AND 2.44 TO 4.57 METER DIAMETER ANTENNAS, USING TRANSISTOR AMPLIFIERS. THE BASELINE GROUND STATION CAPITAL COST FOR ELECTRONICS ALONE IS UNDER \$9,500 FOR THE COMMUNITY ANTENNA AND REDISTRIBUTION RECEIVER SYSTEMS, FOR EXAMPLE. A BRIEF COMPARISON OF THE COST FOR PROVIDING MEDICAL VIDEO SEMINARS FOR THE VETERANS ADMINISTRATION IS PRESENTED, AS AN EXAMPLE OF THE TYPE OF COSTS EXPECTED IN CONSORTIUM OPERATION.

SUBJECT:

HISTORY

KEYWORDS:

PUBLIC SERVICE SATELLITE CONSORTIUM

UNIVERSITY OF DAYTON ACCESS NUMBER: 544

DATE OF DOCUMENT/TYPE: DEC 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: SATELLITE SUPPORT TO THE HIPLEX ACTIVITIES FOR 1975

AUTHOR: PEYNOLDS, D. W.; VONDER HAAR, T. W.

SPONSORING AGENCY: DIVISION OF ATMOSPHERIC WATER RESOURCES MGMT., BUREAU OF RECLAMATION, U.S. DEPARTMENT OF INTERIOR, DENVER, COLORADO, 80225

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO DETERMINE HOW INFORMATION FROM METEOROLOGICAL SATELLITES CAN AID IN THE OPERATION AND POST EXPERIMENTAL ANALYSIS OF THE HIPLEX.

ABSTRACT: FINAL RESULTS OF A CLOUD CLIMATOLOGY DEVELOPED USING ATS-3 SATELLITE IMAGERY FOR THE THREE HIPLEX SITES (MILES CITY, COLBY-GOODLAND, BIG SPRING) ARE PRESENTED. CASE STUDY RESULTS DEMONSTRATE THE USEFULNESS OF SATELLITE DATA IN DETERMINING CLOUD HEIGHTS, ORGANIZATION, LIFE TIME COMPARED TO RADAR, SIZE COMPARE TO ECHO SIZE, AND SHOW HOW SATELLITE SOUNDER DATA CAN EXTEND CONVENTIONAL RADIOSONDE DATA IN BOTH SPACE AND TIME. THREE YEARS OF ATS-3 SATELLITE DATA WERE ALSO EXAMINED AND A SUBJECTIVE CLASSIFICATION OF MESOSCALE AND SYNOPTIC WEATHER FEATURES WERE COMPILED FOR THE THREE HIPLEX SITES AND THE NORTHERN, CENTRAL AND SOUTHERN HIGH PLAINS. ALSO, FIVE YEARS OF WBAN-10 HOURLY OBSERVATION WERE ANALYZED AND A CLIMATOLOGY OF CONVECTIVE CLOUD AND PRECIPITATION OCCURRENCES WERE COMPILED. WE VIEW THESE RESULTS AS ONLY A PRELIMINARY LOOK INTO HOW SATELLITES CAN SUPPORT THE HIPLEX EXPERIMENT. THE DIGITAL AND IMAGERY DATA GATHERED DURING THIS PAST SUMMER FROM THE SMS-2 SATELLITE SHOULD INCREASE OUR KNOWLEDGE OF HOW SATELLITES CAN SUPPORT THE HIPLEX.

SUBJECT: METEOROLOGY

KEYWORDS: CLOUDS; METEOROLOGY; CLIMATOLOGY; ATS-3; HIPLEX OPERATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 545

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DATE OF DOCUMENT/TYPE: JUN 75 / PROGRESS REPORT

TITLE OF DOCUMENT: ATS-6 MILLIMETER WAVE LENGTH PROPAGATION EXPERIMENT.

AUTHOR: HODGE, D. B.; THEOBOLD, D. M.

SPONSORING AGENCY: NASA, GSFC, GREENBELT, MARYLAND, 20771

SATELLITE: ATS-6

ABSTRACT: AN EMPIRICAL RELATION FOR PATH DIVERSITY GAIN AS A FUNCTION OF TERMINAL SEPARATION DISTANCE AND SINGLE SITE FACE DEPTH IS PRESENTED. THIS RELATION IS BASED ON EXISTING 15.3 GHZ ATS-5 ATTENUATION DATA AND 16.0 GHZ RADIOMETRIC TEMPERATURE DATA FOR EARTHSPACE PROPAGATION PATHS. PRELIMINARY 30 GHZ ATS-6 DIVERSITY DATA ARE PRESENTED AND ARE FOUND TO AGREE WELL WITH THIS EMPIRICAL RELATION. THE CURRENT STATUS AND SUMMARY OF OPERATIONS ARE ALSO REVIEWED.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-6; MILLIMETER WAVE; PROPAGATION; DIVERSITY

UNIVERSITY OF DAYTON ACCESS NUMBER: 546

DATE OF DOCUMENT/TITLE: OCT 74

/ JOURNAL ARTICLE

TITLE OF DOCUMENT: METEOROLOGICAL SATELLITE COVERAGE OF FLORIDA EVERGLADES FIRES

AUTHOR: SHYGER, J.F.; ASHPAN, J. P.; BRANDLI, H. W.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: AID IN FORECASTING OF REDUCED VISIBILITIES DUE TO SMOKE AND PROVIDE DATA FOR FIRE FIGHTING.

ABSTRACT: SEVERAL BIG FIRES IN THE FLORIDA EVERGLADES IN THE SPRING OF 1974 CREATED A GREAT DEAL OF ACPI  
C SMOKE WHICH WAS ADVECTED NORTHWARD AND REDUCED VISIBILITIES AT MANY LOCATIONS, INCLUDING PARTICK  
AFB. A SUBSIDENCE INVERSION AND LOW-LEVEL SOUTHWESTERLY FLOW COMBINED ON 1 MAY TO SEND A PLUME OF  
SMOKE INTO CENTRAL FLORIDA WHICH REDUCED VISIBILITIES TO 2 MI OR LESS IN AREAS SOUTH OF CAPE CANAVER  
PAL. THE 1430 GMT NOAA3 SATELLITE PHOTO REVEALED THE EXISTENCE OF THE PLUME TO THE CAPE CANAVERAL F  
OPECAST FACILITY (CCFF) FORECASTERS. LATER, SATELLITE IMAGERY TAKEN BETWEEN 1340 AND 2110GMT WAS R  
ECEIVED WHICH SHOWED MOVEMENT OF THE PLUME OFFSHORE. THESE PHOTOGRAPHS GAVE EVIDENCE THAT TIMELY U  
SE OF METEOROLOGICAL SATELLITE DATA CAN GREATLY AID IN THE FORECASTING OF REDUCED VISIBILITIES DUE  
TO SMOKE. IN ADDITION, HIGH-RESOLUTION INFRARED AND VISUAL IMAGERY FROM DEFENSE METEOROLOGICAL SAT  
ELLITE PROGRAM AND NOAA SATELLITES GAVE STRONG EVIDENCE THAT THESE DATA CAN BE USED TO PINPOINT AND  
MONITOR BRUSH AND FOREST FIRES AS WELL AS PROVIDE LOCAL METEOROLOGICAL DATA VITAL TO THE FIRE FIGH  
TING EFFORT.

SUBJECT: METEOROLOGY

KEYWORDS: EVERGLADES; FOREST FIRE; ATS-3; METEOROLOGICAL SATELLITES; SATELLITE-BORNE PHOTOGRAPHY

JOURNAL TITLE: MONTHLY WEATHER REVIEW, VOL. 104, PAGES 1330-1332

UNIVERSITY OF DAYTON ACCESS NUMBER: 547

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DATE OF DOCUMENT/TYPE: NOV 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: DATA COLLECTION OPERATIONAL SUPPORT SYSTEM, PART 2

AUTHOR: FEDERATION ENGINEERING STAFF

SPONSORING AGENCY: NASA, GSFC, N.E. HARPER, CODE 951, GREENBELT, MARYLAND, 20771

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: CALIBRATION OF 10 RECEIVING SITES IN THE ROCKIES.

ABSTRACT: CALIBRATED SIGNAL-STRENGTH DATA OBTAINED AT 10 SITES IN THE ROCKIES AND NASA TELEMETRY DATA REGARDING THE SIGNAL LEVELS IN THE ATS 6 SPACECRAFT ARE PRESENTED ALONG WITH METHODOLOGY TO USE THE DATA TO COMPUTE THE CARRIER-TO-NOISE RATIOS AND SIGNAL-TO-NOISE RATIOS AT EACH OF THE CALIBRATED SITES. THE DATA AND METHODOLOGY ARE ALSO USED TO ESTIMATE THE MEDIAN VALUES OF THESE QUANTITIES FOR SITES IN THE ROCKIES, ALASKA, AND APPALACHIA. RESULTS ARE DISCUSSED.

SUBJECT: DATA TRANSMISSION METEOROLOGY

KEYWORDS: ATS-6; CALIBRATING; RECEIVERS; SATELLITE TRANSMISSION

TECHNICAL REPORT NUMBER: NAS5-20533 UNIVERSITY OF DAYTON ACCESS NUMBER: 548

E-288

DATE OF DOCUMENT/TYPE: MAY 76 / TECHNICAL REPORT

TITLE OF DOCUMENT: DIGITAL TONE RANGING MODEM DESIGN AND IMPLEMENTATION

AUTHOR: MAURO, P. G.

SPONSORING AGENCY: FEDERAL AVIATION ADMINISTRATION, SYSTEMS RESEARCH AND DEVELOPMENT SERVICES, WASHINGTON, D.C., 20591

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO IMPLEMENT AND TEST THE DIGITAL TONE RANGING MODEM.

ABSTRACT: THE REPORT DESCRIBES A DIGITAL RANGING MODEM IMPLEMENTATION BASED ON SIDE-TONE RANGING CONCEPTS. THE RANGING TECHNIQUE IMPLEMENTED AND TESTED IN THE DOT/TSC AVIONICS LABORATORY HAS DIRECT APPLICATION TO THE AEROSAT SURVEILLANCE SYSTEM. THE PERFORMANCE OF A BREADBOARD UNIT WAS OBSERVED IN THE LABORATORY AS WELL AS UNDER ACTUAL AERONAUTICAL AND MARITIME EXPERIMENTS CONDUCTED WITH THE NASA ATS-6 SATELLITE. THE TECHNIQUE DEMONSTRATED AN ACQUISITION PROBABILITY OF 0.98 FOR A SIGNAL-TO-NOISE POWER DENSITY RATIO, C/N0, OF 37 DB-HZ. THE RANGING PRECISION OF THE MODEM (FOR C/N0 > 50 DB-HZ) IS LESS THAN 66 METERS. CIRCUIT SCHEMATICS, TEST DATA, TEST RESULTS AND ANALYSES ARE INCLUDED IN THIS REPORT ALONG WITH RECOMMENDATIONS FOR FUTURE APPLICATIONS OF THE DEMONSTRATED HARDWARE.

KEYWORDS: RANGING MODEM; POSITION DETERMINATION; SIDE TONE RANGING; ATS-6

UNIVERSITY OF DAYTON ACCESS NUMBER: 549

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DATE OF DOCUMENT/TYPE: JAN 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: WIND ESTIMATES FROM CLOUD MOTIONS - PHASE 1 OF AN IN SITU AIRCRAFT VERIFICATION EXPERIMENT.

AUTHOR: HASLER, A. F.; SHENK, W.; SKILLMAN, W.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO DERIVE CLOUD MOTION WIND ESTIMATES WITH IN SITU AIRCRAFT WIND VELOCITY MEASUREMENTS.

ABSTRACT: AN INITIAL EXPERIMENT HAS BEEN CONDUCTED TO VERIFY GEOSTATIONARY-SATELLITE-DERIVED CLOUD MOTION WIND ESTIMATES WITH IN SITU AIRCRAFT WIND VELOCITY MEASUREMENTS. CASE HISTORIES OF 1/2 TO 2 H WERE OBTAINED FOR 3-10 KM DIAMETER CUMULUS CLOUD SYSTEMS ON 6 DAYS. ALSO, ONE CIRRUS CLOUD CASE WAS OBTAINED. IN MOST CASES THE CLOUDS WERE DISCRETE ENOUGH THAT BOTH THE CLOUD MOTION AND THE AMBIENT WIND COULD BE MEASURED WITH THE SAME AIRCRAFT INERTIAL NAVIGATION SYSTEM (INS). THE MAGNITUDE OF THE VECTOR DIFFERENCE BETWEEN THE CLOUD MOTION AND THE AMBIENT WIND AT THE CLOUD BASE AVERAGED 1.2 M/SEC. THE WIND VECTOR AT HIGHER LEVELS IN THE CLOUD LAYER DIFFERED BY ABOUT 3 TO 5 M/SEC FROM THE CLOUD MOTION VECTOR.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; WIND VELOCITY MEASUREMENT; CIRRUS CLOUDS; CUMULUS CLOUDS

JOURNAL TITLE: JOURNAL OF APPLIED METEOROLOGY, VOL. 15, PAGES 10-15

UNIVERSITY OF DAYTON ACCESS NUMBER: 550

DATE OF DOCUMENT/TYPE: OCT 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: EOLE BALLOON AND ATS CLOUD MOTION COMPARISONS.

AUTHOR: SALOMONSON, V. V.

SATELLITE: ATS-1; ATS-3

OBJECT OF EXPERIMENT: COMPARE WINDS OBTAINED FROM EOLE BALLOON AND WINDS DETERMINED FROM CLOUD MOTIONS OBSERVED FROM THE ATS-1 AND ATS-3.

ABSTRACT: COMPARISONS ARE MADE BETWEEN WINDS OBTAINED FROM EOLE BALLOONS AND WINDS DETERMINED FROM CLOUD MOTIONS AS OBSERVED FROM THE APPLICATIONS TECHNOLOGY SATELLITES, ATS-1 AND ATS-3. THE RESULTS SHOW THAT THE MEAN WINDS DETERMINED FROM EOLE BALLOONS ARE GREATER IN SPEED THAN MEAN WINDS DERIVED FROM CLOUD MOTION OBSERVATIONS. INSPECTION OF THE TOTAL SET OF COMPARISONS LEADS ONE TO CONCLUDE THAT THE CLOUD MOTION WINDS IN THE 20-50 S LATITUDE BAND APPLY TO A LEVEL LOWER THAN 200 MB. THE MEAN DIFFERENCES BECOME SMALLER TOWARD THE EQUATOR AND THE RESULTS FURTHER SUGGEST THAT THE CLOUD MOTION WINDS APPLY TO ALTITUDES HIGHER THAN 200 MB EQUATORWARD OF 20 S.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; ATS-3; WIND VELOCITY MEASUREMENT; EOLE BALLOONS, CLOUDS

JOURNAL TITLE: JOURNAL OF APPLIED METEOROLOGY, VOL. 14, PAGES 1266-1270

UNIVERSITY OF DAYTON ACCESS NUMBER: 551

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: JUN 75 / PROGRESS REPORT

TITLE OF DOCUMENT: U.S. AERONAUTICAL L-BAND SATELLITE TECHNOLOGY TEST PROGRAM

AUTHOR: SCHROEDER, L. H.; SUTTON, R. W.; THOMPSON, A. D.; PAULSON, C. V.; WILSON, S. G.

SPONSORING AGENCY: U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, SYSTEMS RESEARCH AND DEVELOPMENT SERVICE, WASHINGTON, D.C., 20591

SATELLITE: ATS-6 EXPERIMENT PERIOD: SEP 74 - APR 75

OBJECT OF EXPERIMENT: TO COLLECT SATELLITE-AIRCRAFT SIGNAL PROPAGATION DATA, EVALUATE L-BAND AVIONICS HARDWARE DESIGNS AND TO PERFORM SATELLITE VOICE AND DATA COMMUNICATIONS DEMONSTRATION TESTS.

ABSTRACT: THE U.S. AERONAUTICAL L-BAND SATELLITE TEST PROGRAM WAS PERFORMED BETWEEN SEPTEMBER 1974 AND APRIL 1975 AS PART OF AN INTERNATIONAL ATS-6 L-BAND SATELLITE TEST PROGRAM. THE TECHNOLOGY TESTS WERE COMPRISED OF MULTIPATH CHANNEL CHARACTERIZATION TESTS; MODEM TESTS OF VOICE, DATA, AND RANGING; AND AIRCRAFT ANTENNA TESTS. MULTIPATH RESULTS INCLUDE DELAY-DOPPLER SCATTER FUNCTION CHARACTERISTICS AND CALCULATIONS OF SPECTRA, SPREADS AND AUTOCORRELATIONS FOR BOTH OVER-OCEAN AND BONUS MULTIPATH. COMPARISON OF SAMPLE RESULTS WITH MODEL PREDICTION IS GIVEN. VOICE MODEM INTELLIGIBILITY SCORES, DIGITAL DATA BIT ERROR RATES AND RANGING MODEM PERFORMANCE ARE PRESENTED PARAMETRICALLY AS FUNCTIONS OF C/N SUB 0 AND S/I. EXPERIMENTALLY DERIVED GAIN AND MULTIPATH REJECTION PERFORMANCE DATA ARE GIVEN FOR THE SLOT-DIPOLES, PHASED ARRAY, PATCH, AND CROSSED-SLOT ANTENNAS FOR VARIOUS AIRCRAFT/SATELLITE GEOMETRIES.

SUBJECT: AIRCRAFT COMMUNICATIONS VOICE COMMUNICATIONS

KEYWORDS: SATELLITE COMMUNICATIONS; ANTENNAS; AEROSAT; MODEM EVALUATION; VOICE INTELLIGIBILITY; L-BAND; ATS-6 SATELLITE

TECHNICAL REPORT NUMBER: FAA-ED-75-111 UNIVERSITY OF DAYTON ACCESS NUMBER: 552

DATE OF DOCUMENT/TYPE: APR 76 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: 20- AND 30- GHZ MILLIMETER WAVE EXPERIMENTS WITH THE ATS-6 SATELLITE

AUTHOR: IPPOLITO, L. J.

SPONSORING AGENCY: NASA, WASHINGTON, D.C., 20546

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO PROVIDE THE FIRST DIRECT MEASUREMENTS OF 20- AND 30-GHZ EARTH-SPACE LINKS FROM AN ORBITING SATELLITE.

ABSTRACT: STUDIES AT 11 LOCATIONS IN THE CONTINENTAL UNITED STATES WERE DIRECTED AT AN EVALUATION OF RAIN ATTENUATION EFFECTS, SCINTILLATIONS, DEPOLARIZATION, SITE DIVERSITY, COHERENCE BANDWIDTH, AND ANALOG AND DIGITAL COMMUNICATIONS TECHNIQUES USING THE APPLICATIONS TECHNOLOGY SATELLITE-6 (ATS-6). IN ADDITION TO DIRECT MEASUREMENTS ON THE 20- AND 30-GHZ LINKS, METHODS OF ATTENUATION PREDICTION WITH RADARS, RAIN GAGES, AND RADIOMETERS WERE DEVELOPED AND COMPARED WITH THE DIRECTLY MEASURED ATTENUATION. INITIAL DATA RESULTS OF THE ATS-6 MILLIMETER WAVE EXPERIMENT WERE PRESENTED. THE FIRST SECTION DESCRIBES THE EXPERIMENT OBJECTIVES, FLIGHT HARDWARE, AND MODES OF OPERATION. THE REMAINING SIX SECTIONS PRESENT PAPERS PREPARED BY THE MAJOR PARTICIPATING ORGANIZATIONS IN THE EXPERIMENT. THE PAPERS PRESENT A COMPREHENSIVE SUMMARY OF THE SIGNIFICANT RESULTS OF THE INITIAL 11 MONTHS OF ATS-6 EXPERIMENT MEASUREMENTS AND RELATED RADIOMETRIC, RADAR, AND RADIO-METEOROLOGY STUDIES.

SUBJECT: MILLIMETER WAVE

KEYWORDS: MILLIMETER WAVE; SPACE COMMUNICATIONS; RAIN ATTENUATION; SCINTILLATION; PROPAGATION; DEPOLARIZATION; SITE DIVERSITY; RADIO METEOROLOGY; ATS-6

TECHNICAL REPORT NUMBER: NASA TN D-8197

UNIVERSITY OF DAYTON ACCESS NUMBER: 553

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DATE OF DOCUMENT/TYPE: 74 / TECHNICAL REPORT

TITLE OF DOCUMENT: LIBRARY NETWORKS 1974-1975

AUTHOR: MILLER, M. R.

SPONSORING AGENCY: KNOWLEDGE INDUSTRY PUBLICATIONS, INC., P.O. BOX 429, TIFFANY TOWERS, WHITE PLAINS, NEW YORK, 10602

OBJECT OF EXPERIMENT: TO USE COMPUTERS AND TELECOMMUNICATIONS NETWORKS TO SHARE RESOURCES AND CENTRALIZE PROCESSING TASKS

ABSTRACT: LIBRARIES ARE USING COMPUTERS AND TELECOMMUNICATIONS NETWORKS TO SHARE RESOURCES AND CENTRALIZE PROCESSING TASKS. NETWORKS ALLOW HANDLING OF INCREASING AMOUNTS OF MATERIAL WITH LIMITED FUNDS. NEW DEVELOPMENTS IN COMMUNICATIONS TECHNOLOGY ENCOURAGE NETWORK GROWTH. THE OHIO COLLEGE LIBRARY CENTER IS THE CURRENT LEADER IN NETWORKING. NETWORKING EFFORTS ARE ALSO IN PROGRESS IN NEW ENGLAND, NEW YORK, PENNSYLVANIA, AND THE FEDERAL LIBRARY SYSTEM; VARIOUS COMMERCIAL NETWORKING VENTURES ARE UNDERWAY. EVENTUALLY, THE NATIONAL COMMISSION ON LIBRARIES AND INFORMATION SCIENCE HOPES TO ESTABLISH A NATIONAL LIBRARY NETWORK. A DIRECTORY OF SELECTED NETWORKS IS APPENDED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: COMMUNICATION SATELLITES; LIBRARY AUTOMATION; LIBRARY NETWORKS; TELECOMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 554

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: JUN 76 / TECHNICAL MEMORANDUM  
TITLE OF DOCUMENT: UNITED STATES SOCIETAL EXPERIMENTS VIA THE COMMUNICATIONS TECHNOLOGY SATELLITE  
AUTHOR: DONOUGHE, P. L.  
SPONSORING AGENCY: LEWIS RESEARCH CENTER, CLEVELAND, OHIO, 44135  
SATELLITE: CTS

OBJECT OF EXPERIMENT: TO SUMMARIZE THE SATELLITE COMMUNICATIONS CAPABILITIES AND THE ANTENNA COVERAGE FOR THE U.S.

ABSTRACT:

THE COMMUNICATIONS TECHNOLOGY SATELLITES (CTS) IS A COOPERATIVE EXPERIMENT PROGRAM OF THE UNITED STATES AND CANADIAN GOVERNMENTS. CTS USES A HIGH-POWER TRANSPONDER AT THE HITHERTO UNUSED FREQUENCIES OF 14/12 GHZ FOR TWO-WAY TELEVISION AND VOICE COMMUNICATION. THE UNITED STATES AND CANADA HAVE AGREED TO SHARE EQUALLY IN THE USE OF CTS. THE U.S. PROGRAM INCLUDES A VARIETY OF SOCIETAL EXPERIMENTS. THE GROUND STATIONS FOR THESE EXPERIMENTS ARE LOCATED FROM THE ATLANTIC TO THE PACIFIC.

THIS PAPER SUMMARIZES THE SATELLITE COMMUNICATIONS CAPABILITIES AND THE ANTENNA COVERAGE FOR THE U.S. EMPHASIS IS PLACED ON THE U.S. SOCIETAL EXPERIMENTS IN THE AREAS OF EDUCATION, HEALTH CARE, AND COMMUNITY AND SPECIAL SERVICES; NINE SEPARATE EXPERIMENTS ARE DISCUSSED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS  
TELEVISION

KEYWORDS: CTS; TWO-WAY TELEVISION; VOICE COMMUNICATIONS; EDUCATION; HEALTH CARE

TECHNICAL REPORT NUMBER: NASA TM X-73403

UNIVERSITY OF DAYTON ACCESS NUMBER: 555

E-294

DATE OF DOCUMENT/TYPE: MAY 73 / JOURNAL ARTICLE

TITLE OF DOCUMENT: SATELLITE-AIRCRAFT MULTIPATH AND RANGING EXPERIMENT RESULTS AT L-BAND.

AUTHOR: SUTTON, R. W.; SCHROEDER, E. W.; THOMPSON, A. D.; WILSON, S. G.

SPONSORING AGENCY: U.S. DEPARTMENT OF TRANSPORTATION, FAA, WASHINGTON, D.C., 20531

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: TO ACQUIRE DATA WITHIN THE 1545-1655 MHZ FREQUENCY BAND ALLOCATED FOR FUTURE AERONAUTICAL SATELLITE SERVICES.

ABSTRACT: RESULTS OF A FLIGHT TEST PROGRAM INVOLVING A KC-135 JET AIRPLANE, THE SYNCHRONOUS ATS-5 L-BAND SATELLITE, AND A GROUND STATION ARE PRESENTED. TESTS INCLUDED OVER-OCEAN MULTIPATH MEASUREMENTS AND ONE-WAY TONE RANGING WITHIN THE 1545-1655 MHZ FREQUENCY BAND. AMPLITUDE CHARACTERISTICS, POLARIZATION, POWER SPECTRAL DENSITY, AND SELECTIVE FADING PROPERTIES WERE MEASURED FOR SEA-REFLECTED AND COMPOSITE SIGNAL CHANNELS. CW TONE-RANGING PERFORMANCE WAS DETERMINED IN BOTH THE THERMAL NOISE AND MULTIPATH ENVIRONMENTS. COMPARISON OF EXPERIMENTAL RESULTS WITH THEORETICAL EXPECTATION IS GIVEN.

SUBJECT: AIRCRAFT COMMUNICATIONS NAVIGATION

KEYWORDS: ATS-5; AIRCRAFT COMMUNICATION; MULTIPATH TRANSMISSION; SPACECRAFT COMMUNICATION; ULTRAHIGH FREQUENCIES

JOURNAL TITLE: TRANSACTIONS AND COMMUNICATIONS, VOL. COM 21, PAGES 633-647

UNIVERSITY OF DAYTON ACCESS NUMBER: 556

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DATE OF DOCUMENT/TYPE: MAR 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: SMALL EARTH STATIONS FOR BROADCASTING SATELLITE SYSTEMS.

AUTHOR: CARD, M. L.; PALMER, J. D.; LOGAN, K.; LOPIANGWSKI, N. M.

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO DETERMINE WHAT IS FEASIBLE IN REGARD TO BROADCASTING-SATELLITE BOTH TELEVISION AND AUDIO.

ABSTRACT: TYPICAL PARAMETERS FOR INDIVIDUAL AND COMMUNITY EARTH STATIONS CAPABLE OF RECEIVING TV TRANSMISSION FROM A COMMUNICATIONS TECHNOLOGY SATELLITE (CTS) (WHICH IS TO USE A 200-W TRAVELING-WAVE TUBE) ARE CONSIDERED IN ORDER TO DETERMINE WHAT IS NOW FEASIBLE AND WHAT MAY BECOME SO OVER THE COMING DECADE. THE STATE OF THE ART IN BROADCASTING-SATELLITE GROUND RECEIVERS IS REVIEWED IN REGARD TO ANTENNAS, MICROWAVE INTEGRATED CIRCUITS, SURFACE-ACOUSTIC-WAVE DEVICES, FIELD-EFFECT TRANSISTORS AND PARAMETRIC AMPLIFIERS. RECEIVER MODELS CONSIDERED ARE OF A TYPE SUITABLE FOR CANADIAN APPLICATION, I.E. ONE OR TWO TELEVISION CHANNELS SELECTABLE BY TUNING, PLUS ONE OR TWO AUDIO CHANNELS (SWITCHED) IN THE CASE OF INDIVIDUAL RECEIVERS, AND UP TO SIX SIMULTANEOUS TELEVISION CHANNELS, EACH WITH TWO AUDIO, IN THE CASE OF COMMUNITY RECEIVERS. IT IS CONCLUDED THAT, FOR ECONOMIC REASONS, DIRECT-TO-HOME BROADCASTING FROM SATELLITES WILL NOT BE A COMMERCIAL PROPOSITION BY THE EARLY 1980S ALTHOUGH SOME FORMS OF SATELLITE-TO-COMMUNITY BROADCASTING COULD BE OPERATING.

SUBJECT: BROADCASTING VOICE COMMUNICATIONS TELEVISION

KEYWORDS: CTS; TELEVISION RECEIVERS; TELECOMMUNICATIONS SYSTEMS; SATELLITE RELAY; MICROWAVE

JOURNAL TITLE: SOCIETY OF MOTION PICTURE AND TV ENGINEERING JOURNAL, VOL. 84, PAGES 143-147

UNIVERSITY OF DAYTON ACCESS NUMBER: 557

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DATE OF DOCUMENT/TYPE: JAN 71 / JOURNAL ARTICLE

TITLE OF DOCUMENT: HYDROLOGIC DATA COLLECTION VIA GEOSTATIONARY SATELLITE.

AUTHOR: FLANDERS, A. F.; SCHIESL, J. W.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO COLLECT DATA FOR RIVERS AND FLOOD FORECAST OF NATIONAL WEATHER FORECAST VIA ATS-1

ABSTRACT: THE RIVER AND FLOOD FORECAST AND WARNING SERVICE OF THE NATIONAL WEATHER SERVICE DEPENDS ON METEOROLOGICAL DATA AND A VAST HYDROLOGIC REPORTING NETWORK OF NEARLY 5000 RIVER AND RAINFALL STATIONS. REPORTS ARE COLLECTED DAILY OR ON A CRITERIA BASIS DURING PERIODS OF HEAVY RAINFALL AND/OR HIGH FLOW IN THE RIVERS. DURING THE TIME FROM 1967 TO 1969, AN EXPERIMENT IN RIVER AND RAINFALL DATA COLLECTION VIA NASA'S ATS-1 SATELLITE WAS CONDUCTED. THE TECHNICAL AND OPERATIONAL FEASIBILITY OF DATA COLLECTION FROM REMOTE SITES VIA SATELLITE WAS PROVED IN THE TEST.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-1; FLOOD PREDICTIONS; HYDROLOGY

JOURNAL TITLE: IEEE TRANSACTIONS ON GEOSCIENCE ELECTRONICS, VOL. GE-10, PAGES 47-51

UNIVERSITY OF DAYTON ACCESS NUMBER: 558

DATE OF DOCUMENT/TYPE: 1977 / TECHNICAL REPORT

TITLE OF DOCUMENT: TOWARD THE PUBLIC DIVIDEND: A REPORT ON SATELLITE TELECOMMUNICATIONS

AUTHOR: MCGRAW, M.

ABSTRACT: THIS REPORT DISCUSSES THE PRESENT COMMUNICATIONS REVOLUTION CAUSED BY GEOSTATIONARY SATELLITES. CONCERNS ARE VOICED RELATIVE TO THE CONTROL OF INFORMATION. THE QUESTION OF LEGISLATION OF SATELLITE USE IS RAISED. THE REPORT INCLUDES A HISTORY OF SATELLITE COMMUNICATION. ALSO DESCRIBED IS THE PUBLIC INTEREST SATELLITE ASSOCIATION AND THEIR OBJECTIVES.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS

KEYWORDS: SATELLITE; COMMUNICATION; PUBLIC; FISA; COMSAT; DOMSAT

UNIVERSITY OF DAYTON ACCESS NUMBER: 559

DATE OF DOCUMENT/TYPE: JAN 76 / INDEX OF USERS

TITLE OF DOCUMENT: COMMUNICATIONS TECHNOLOGY SATELLITE

AUTHOR: UNKNOWN

SPONSORING AGENCY: NASA LEWIS RESEARCH CENTER, CLEVELAND, OHIO, 44135

SATELLITE: CTS

ABSTRACT: THIS BOOKLET WAS PUT OUT BY NASA TO EXPLAIN THE CTS SATELLITE PROGRAM. THE CHARACTERISTICS OF THE CTS SATELLITE ARE OUTLINED AND A TABLE OF SATELLITE USERS IS GIVEN. A BRIEF DESCRIPTION OF EACH EXPERIMENT IS INCLUDED.

SUBJECT: HISTORY

KEYWORDS: CTS; SATELLITE; COMMUNICATION; USER; CANADA; TELECOMMUNICATION; EDUCATION; HEALTH

UNIVERSITY OF DAYTON ACCESS NUMBER: 560

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DATE OF DOCUMENT/TYPE: 24 AUG 76 / INDEX OF USERS

TITLE OF DOCUMENT: CTS U.S. USER EXPERIMENTS, ASSOCIATED ORGANIZATIONS AND PERSONNEL.

AUTHOR: CRANE, NORMA

SPONSORING AGENCY: NASA-LEWIS RESEARCH CENTER, CLEVELAND, OHIO, 44135

SATELLITE: CTS

ABSTRACT: THIS DOCUMENT CONSISTS OF THREE TABLES. TABLE 1 LISTS CTS EXPERIMENTS, TABLE 2 LISTS PERSONNEL INVOLVED AND TABLE 3 LISTS NAMES AND ADDRESSES OF PERSONNEL, INCLUDING PRINCIPAL INVESTIGATORS. THESE ARE U.S. EXPERIMENTS BEING CONDUCTED ON CTS.

SUBJECT: HISTORY

KEYWORDS: CTS; USER EXPERIMENTS; PERSONNEL; ORGANIZATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 561

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DATE OF DOCUMENT/TYPE: JAN 76 / PROGRESS REPORT

TITLE OF DOCUMENT: CTS UNITED STATES USERS MEETING #13

AUTHOR: DONOUGHE, P. L.

SPONSORING AGENCY: NASA-LEWIS RESEARCH CENTER, CLEVELAND, OHIO, 44135

SATELLITE: CTS

ABSTRACT: THIS DOCUMENT IS A SUMMARY OF CTS U.S. USERS MEETING #13 AT NASA KENNEDY SPACE CENTER. INCLUDED ARE HIGHLIGHTS FROM THE PERLAUNCH PRESS CONFERENCE AND A LIST OF U.S. USER EXPERIMENTS TO BE PERFORMED ON THE CTS. A BRIEF DESCRIPTION OF EACH EXPERIMENT IS GIVEN.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MARITIME TRAFFIC CONTROL MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS  
BACKGROUND

KEYWORDS: CTS; COMMUNICATIONS TECHNOLOGY SATELLITE; USERS; EXPERIMENT; LAUNCH; EDUCATION; HEALTH

UNIVERSITY OF DAYTON ACCESS NUMBER: 562

DOCUMENT/TYPE: APR 76 / PROGRESS REPORT

DOCUMENT: CTS UNITED STATES USERS MEETING #14

AUTHOR: DONOUGHE, P. L.

SPONSORING AGENCY: NASA LEWIS RESEARCH CENTER, CLEVELAND, OHIO, 44135

SATELLITE: CTS

ABSTRACT: THIS DOCUMENT SUMMARIZES THE FOURTEENTH MEETING OF THE UNITED STATES CTS USERS. THE REPORT INCLUDES THE MINUTES OF THE MEETING, A LIST OF ATTENDEES, SCHEDULES, AND PROGRESS SUMMARIES FOR THE VARIOUS USER EXPERIMENTS. THE MEETING WAS HELD AT NASA AMES, MOFFETT FIELD, CALIFORNIA.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MARITIME TRAFFIC CONTROL MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS  
BACKGROUND

KEYWORDS: CTS; COMMUNICATIONS TECHNOLOGY SATELLITE; USERS; EXPERIMENT; EDUCATION; HEALTH

UNIVERSITY OF DAYTON ACCESS NUMBER: 563

DATE OF DOCUMENT/TYPE: NOV 76 / PROGRESS REPORT

TITLE OF DOCUMENT: CTS UNITED STATES USERS MEETING #16.

AUTHOR: DONOUGHE, P. L.

SPONSORING AGENCY: NASA LEWIS RESEARCH CENTER, CLEVELAND, OHIO, 44135

SATELLITE: CTS

ABSTRACT: THIS REPORT SUMMARIZES THE SIXTEENTH MEETING OF THE UNITED STATES CTS USERS. THE REPORT INCLUDES THE MINUTES OF THE MEETING, A LIST OF ATTENDEES, SCHEDULES, AND PROGRESS SUMMARIES OF THE USER EXPERIMENTS. ALSO, INCLUDED IS A LIST OF PROPOSED EXPERIMENTS, WITH NAMES AND ADDRESSES OF PRINCIPAL INVESTIGATORS, FOR THE THIRD YEAR OF ATS-6 OPERATION. A UNIQUE FEATURE OF THIS MEETING WAS THAT IT WAS A TELEVISION CONFERENCE VIA CTS. TWO GROUPS WERE INVOLVED, ONE AT NASA LEWIS, CLEVELAND, OHIO AND THE OTHER AT WESTINGHOUSE, BALTIMORE, MD.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
BACKGROUND CONFERENCING

KEYWORDS: CTS; COMMUNICATIONS TECHNOLOGY SATELLITE; USERS; EXPERIMENT; HEALTH; EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 564

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DATE OF DOCUMENT/TYPE: FEB 77 / PROGRESS REPORT  
TITLE OF DOCUMENT: CTS UNITED STATES USERS MEETING #17.  
AUTHOR: DONOCHUE, P. L.  
SPONSORING AGENCY: NASA LEWIS RESEARCH CENTER, CLEVELAND, OHIO, 44135

SATELLITE: CTS

ABSTRACT:

THIS REPORT SUMMARIZES THE EVENTS OF THE SEVENTEENTH MEETING BETWEEN NASA AND USERS ON THE CTS . INCLUDED ARE PROGRESS REPORTS ON EACH EXPERIMENT WITH A MAP SHOWING CTS USER LOCATION. ALSO INCLUDED IS A LIST OF CANADIAN EXPERIMENTS WITH THEIR PRESENT STATUS. THIS WAS A TELECONFERENCE VIA L EWIS (CLEVELAND), AMES (CALIFORNIA) AND CARLETON UNIVERSITY (OTTAWA).

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
VOICE COMMUNICATIONS BACKGROUND

KEYWORDS: CTS; COMMUNICATIONS TECHNOLOGY SATELLITE; USERS; CANADA; TELECOMMUNICATION; TELECONFERENCING; HEALTH; EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 565

DATE OF DOCUMENT/TYPE: DEC 76 / PROPOSAL  
OPERATIONAL PLAN  
TITLE OF DOCUMENT: THE APPALACHIAN EDUCATIONAL SATELLITE PROGRAM: OPERATIONAL PLAN  
AUTHOR: MORSE, M. E.

SATELLITE: ATS-6

ABSTRACT:

THIS PLAN CONTAINS BACKGROUND INFORMATION ON THE APPALACHIAN AREA AND POPULATION AND THE APPALACHIAN EDUCATION SATELLITE PROGRAM. AN OUTLINE OF NEEDS AND OBJECTIVES, AN ORGANIZATION CHART AND RESEARCH AND EVALUATION PLANS ARE INCLUDED. THE APPENDIX INCLUDES A BIBLIOGRAPHY, A LIST OF RESUMES, A SITE LIST, AND TECHNICAL REPORT (LITERATURE REVIEW).

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS  
BACKGROUND

KEYWORDS: ATS-6; APPLICATION TECHNOLOGY SATELLITE; TEACHING; EDUCATION; APPALACHIA

UNIVERSITY OF DAYTON ACCESS NUMBER: 566

DATE OF DOCUMENT/TYPE: DEC 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE ATS-6, AMERICAN CASE STUDIES

AUTHOR: COMLAN, B.; ECOTE, D.

SATELLITE: ATS-6

ABSTRACT: A REVIEW OF THE FIRST YEAR OF OPERATION ON ATS-6 OF ROCKY MOUNTAIN STATES PROJECT, THE APPALACHIAN PROJECT, AND THE NAMI PROJECT AND THE ALASKA PROJECT. SOME INFORMATION IS GIVEN ON THE TYPE OF PROGRAMMING USED AND THE AUDIENCE SERVED. THE AUTHORS' OBSERVATIONS ABOUT THE EXPERIMENTS ARE INCLUDED, AS ARE THEIR RECOMMENDATIONS.

SUBJECT: EDUCATIONAL APPLICATION BACKGROUND MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: ATS-6; APPLICATIONS TECHNOLOGY SATELLITE; EDUCATION; HEALTH; TELECOMMUNICATION; NAMI; APPALACHIA; ROCKY MOUNTAIN; ALASKA; INDIAN

JOURNAL TITLE: EDUCATIONAL BROADCASTING INTERNATIONAL, PAGES 149-154

UNIVERSITY OF DAYTON ACCESS NUMBER: 567

DATE OF DOCUMENT/TYPE: FEB 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: MARKETS FOR A SOCIAL SERVICES SATELLITE

AUTHOR: HUPE, H. H.

SATELLITE: ATS-6

ABSTRACT: THIS ARTICLE GIVES FIGURES FOR THE NUMBER OF PERSONS IN THE MEDICAL ENGINEERING FIELDS AND SPECULATES ON THE DEMAND FOR SATELLITE EDUCATION. THE NEED FOR CONTINUING EDUCATION IN THESE FIELDS MAY MAKE A MARKET FOR SATELLITE COMMUNICATION. THE COST EFFECTIVENESS OF SATELLITE COMMUNICATIONS IS DISCUSSED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS BACKGROUND

KEYWORDS: ATS-6; TECHNOLOGY; SATELLITE; HEALTH; EDUCATION; SOCIAL SERVICE; USER; TELECOMMUNICATIONS; COMMUNICATIONS

JOURNAL TITLE: ASTRONAUTICS & AERONAUTICS

UNIVERSITY OF DAYTON ACCESS NUMBER: 568

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DATE OF DOCUMENT/TYPE: 73

/ TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: POSITION FIXING EXPERIMENTS USING COMMUNICATION-COMPATIBLE RANGING SIGNALS

AUTHOR: ANDERSON, R. E.

SATELLITE: ATS-1; ATS-3; ATS-5

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO USE TONE-CODE RANGING TECHNIQUE FOR FIXING POSITIONS OF MOBILE STATIONS OVER LARGE REGIONS OF THE EARTH

ABSTRACT:

EXPERIMENTS HAVE SHOWN THAT IT IS REASONABLE TO EXPECT 0.1 NMI. POSITION FIX ACCURACY OVER LARGE REGIONS OF THE EARTH AT L-BAND BY RANGING FROM GEOSTATIONARY SATELLITES. RANGE MEASUREMENTS CAN BE MADE BY MERELY INSERTING A SHORT RANGING CODE INTO A DIGITAL COMMUNICATIONS DATA STREAM. A SMALL INCREMENTAL COST CAN ADD RANGING CAPABILITY TO A USER'S SATELLITE COMMUNICATIONS EQUIPMENT.

THE TONE-CODE RANGING TECHNIQUE HAS BEEN THOROUGHLY TESTED WITH NASA'S ATS-1, ATS-3 AND ATS-5 SATELLITES AT VHF AND AT L-BAND. SINCE THE START OF THE TESTS IN 1968, ALL SIGNIFICANT FACTORS INFLUENCING PRECISION AND ACCURACY HAVE BEEN MEASURED AND MEANS TO RECTIFY THEM HAVE BEEN EVALUATED AND TESTED.

THE COMPATIBILITY OF TONE-CODE RANGING WITH COMMUNICATIONS HAS BEEN DEMONSTRATED WITH THE EQUIPMENTS AS THEY ARE ALSO USED FOR VOICE AND DATA TRANSMISSIONS, AND SOMETIMES FOR FACSIMILE AND TELETYPE.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-1; ATS-3; ATS-5; TECHNOLOGY; RANGING; POSITION FIXING; L-BAND; MARITIME

UNIVERSITY OF DAYTON ACCESS NUMBER: 569

E-303

DATE OF DOCUMENT/TYPE: JAN 76 / WORKING PAPER

TITLE OF DOCUMENT: WHO GAINS BY COMMUNICATIONS DEVELOPMENT? STUDIES OF INFORMATION TECHNOLOGIES IN DEVELOPING COUNTRIES

AUTHOR: CLIPPINGER, J. H.

ABSTRACT: THIS WORKING PAPER DISCUSSES THE IMPACT OF TELECOMMUNICATIONS ON THIRD WORLD COUNTRIES. THE IMPACT OF TELECOMMUNICATION IS DISCUSSED RELATIVE TO ALGERIA AND EL SALVADOR. THE WORKING HYPOTHESIS IS THAT CERTAIN GROUPS, SUCH AS GOVERNMENT, STAND TO BENEFIT MOST FROM IMPROVED TELECOMMUNICATIONS AND THAT THE POOR AND UNEDUCATED MAY ACTUALLY FIND IT TO BE A NEGATIVE FACTOR.

SUBJECT: EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS BACKGROUND

KEYWORDS: TELECOMMUNICATIONS; COMMUNICATIONS; ALGERIA; EL SALVADOR; INFORMATION; EDUCATION; SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 570

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DATE OF DOCUMENT/TYPE: FEB 76 / TECHNICAL REPORT

TITLE OF DOCUMENT: RAINFALL ESTIMATION FROM GEOSYNCHRONOUS SATELLITE IMAGERY DURING DAYLIGHT HOURS

AUTHOR: GRIFFITH, C. G.; WOODLEY, W. L.; BROWNER, S.; TEIJEIRO, J.; HAIR, H.; MATTIN, D. H.; STOUT, J.; SIKDAR, D. N.

SATELLITE: ATS-3

ABSTRACT: THIS REPORT DISCUSSES PROGRESS THAT HAS BEEN IN ESTIMATING RAINFALL FROM SATELLITE PICTURES. EMPIRICAL RELATIONSHIPS WERE TESTED USING TWO AREAS OVER SOUTH FLORIDA. ESTIMATES WERE MADE AND COMPARED WITH ACTUAL VOLUMES. ESTIMATES DIFFERED FROM ACTUAL VOLUMES BY AN ABSOLUTE FACTOR OF 2 OR GREATER. LONGER PERIODS TENDED TO IMPROVE ACCURACY. USE OF THIS METHOD FOR ESTIMATE RAINFALL IN HURRICANES IS ALSO DISCUSSED.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; SATELLITE; RAINFALL; GEOSYNCHRONOUS; HURRICANE; CLOUDS

TECHNICAL REPORT NUMBER: NOAA TRL ERL-WMPO 7

UNIVERSITY OF DAYTON ACCESS NUMBER: 571

E-304



DATE OF DOCUMENT/TYPE: DEC 74 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-6 HEALTH EXPERIMENT; INDIAN HEALTH SERVICE/ALASKA WAMI EXPERIMENT IN REGIONALIZED MEDICAL EDUCATION/SEATTLE, WASHINGTON, PHASE 1

AUTHOR: UNKNOWN

SPONSORING AGENCY: LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATIONS

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO PROVIDE MEDICAL EDUCATION IN WASHINGTON, ALASKA, MONTANA, IDAHO VIA ATS-6.

ABSTRACT: THIS REPORT DESCRIBES THE WORK PERFORMED BY THE INDIAN HEALTH SERVICE IN ALASKA AND THE WAMI (WASHINGTON-ALASKA-MONTANA-IDAHO) EXPERIMENT IN REGIONALIZED MEDICAL EDUCATION AT THE UNIVERSITY OF WASHINGTON, TO DEVELOP THE PROGRAMS, SYSTEMS, AND INSTRUMENTATION REQUIRED TO IMPLEMENT SATELLITE-RELATED COMMUNICATIONS IN HEALTH CARE AND MEDICAL EDUCATION WITHIN THIS VAST NORTHWESTERN REGION.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; WAMI; ALASKA; HEALTH; MEDICINE; NETWORKS; SATELLITE

TECHNICAL REPORT NUMBER: NLM-LHC-76-01 UNIVERSITY OF DAYTON ACCESS NUMBER: 572

DATE OF DOCUMENT/TYPE: DEC 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-6 HEALTH EXPERIMENT: INDIAN HEALTH SERVICE/ALASKA WAMI EXPERIMENT IN REGIONALIZED MEDICAL EDUCATION/SEATTLE, WASHINGTON, PHASE 2

AUTHOR: UNKNOWN

SPONSORING AGENCY: LISTER HILL CENTER FOR BIOMEDICAL COMMUNICATIONS, BETHESDA, MARYLAND, 20014

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO PROVIDE MEDICAL EDUCATION IN WASHINGTON, ALASKA, MONTANA, IDAHO VIA ATS-6.

ABSTRACT: THE PHASE 2 REPORT IS A REVIEW OF THE OPERATIONAL PHASE OF THE ATS-6 HEALTH-EDUCATION TELECOMMUNICATIONS EXPERIMENTS, CONDUCTED UNDER THE AUSPICES OF THE INDIAN HEALTH SERVICE IN ALASKA AND THE WAMI EXPERIMENT IN REGIONALIZED MEDICAL EDUCATION AT THE UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE IN SEATTLE.

THE INDIAN HEALTH SERVICE DEVELOPED A SYSTEM OF COORDINATED TELEMEDICINE AND HEALTH INFORMATION EXPERIMENTS INVOLVING FIVE NATIVE HEALTH CARE FACILITIES. THROUGH INTERACTIVE TELEVISION AND BIO MEDICAL TELMETRY, HEALTH AIDES AT TWO VILLAGE CLINICS CONSULTED WITH PHYSICIANS AT A SERVICE UNIT HOSPITAL IN TANANA, AND WITH SPECIALISTS AT THE ALASKA NATIVE MEDICAL CENTER IN ANCHORAGE. A BACKUP STATION WAS MAINTAINED IN FAIRBANKS.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; WAMI; ALASKA; HEALTH; MEDICINE; NETWORKS

TECHNICAL REPORT NUMBER: NLM-LHC-75-08

UNIVERSITY OF DAYTON ACCESS NUMBER: 573

E-306

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DATE OF DOCUMENT/TYPE: OCT 74 / JOURNAL ARTICLE  
TITLE OF DOCUMENT: EDUCATION SATELLITES: THE ATS-6 EXPERIMENTS  
AUTHOR: GRAYSON, L.F.

SATELLITE: ATS-6

ABSTRACT: THIS ARTICLE DESCRIBES THE EDUCATIONAL ACTIVITIES ON ATS-6 WHICH ARE SUPPORTED BY THE NATIONAL INSTITUTE OF EDUCATION. THE EXPERIMENTS ARE THE ROCKY MOUNTAIN PROJECT, THE APPALACHIAN PROJECT AND THE ALASKA PROJECT. ALSO INCLUDED IS A DESCRIPTION OF THE DELIVERY SYSTEM AND A LIST OF SITES FOR EACH PROJECT.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; APPALACHIA; ALASKA; ROCKY MOUNTAIN; EDUCATION; HEALTH; TELECOMMUNICATION

JOURNAL TITLE: EDUCATIONAL TECHNOLOGY SYSTEMS, VOLUME 3, ISSUE 2, PAGES 89-123

UNIVERSITY OF DAYTON ACCESS NUMBER: 574

DATE OF DOCUMENT/TYPE: AUG 75 / TECHNICAL REPORT  
TITLE OF DOCUMENT: A CASE STUDY OF THE ATS-6 HEALTH, EDUCATION AND TELECOMMUNICATIONS PROJECTS  
AUTHOR: COWLAN, G.; FROTE, D.  
SATELLITE: ATS-6

ABSTRACT:

SIX EXPERIMENTS IN HEALTH AND EDUCATION WERE CONDUCTED IN RURAL AREAS OF THE CONTINENTAL UNITED STATES AND ALASKA DURING 1974-1975, USING THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S APPLIED TECHNOLOGY SATELLITE-SIX. THE EXPERIMENTAL ACTIVITIES INCLUDED COURSES DESIGNED FOR ELEMENTARY, JUNIOR HIGH, HIGH SCHOOL, AND COLLEGE; CONTINUING PROFESSIONAL EDUCATION; MEDICAL CONSULTATIONS AND HEALTH CARE SUPPORT; ADMINISTRATIVE INTERACTION; AND ADULT ENRICHMENT. THE STUDY CONCLUDED THAT (1) SYSTEMS PLANNING AND PROGRAM CONTENT SHOULD BE BASED ON USER NEEDS; (2) EFFECTIVE FIELD PERSONNEL REQUIRE STAFF SUPPORT, PROPER TRAINING, AND MULTISOURCE FEEDBACK; (3) PROJECT OBJECTIVES, PERSONNEL REQUIREMENTS, AND INTERDISCIPLINARY COOPERATION SHOULD BE INITIAL CONSIDERATIONS; (4) SUPPLEMENTARY ACTIVITIES AND MATERIALS PLAY A SIGNIFICANT ROLE; (5) EDUCATIONAL EFFECTIVENESS, TARGET AUDIENCE, AND SUBJECT MATTER ARE PRIMARY PROGRAM ELEMENTS; (6) TIME AND MONEY MAY BE LARGER CONSIDERATIONS THAN ANTICIPATED; AND (7) INTERACTION BETWEEN THE STUDIO AND REMOTE SITES NEEDS TO BE CAREFULLY STRUCTURED AND ADOPTED TO THE SPECIFIC SITUATION.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS  
KEYWORDS: ALASKA; HEALTH; APPALACHIA; ROCKY MOUNTAIN; WAHI; MEDICAL; TELECOMMUNICATION; ATS-6; EDUCATION; TELECONSULTATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 575

E-308

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DATE OF DOCUMENT/TYPE: 76 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE VETERANS ADMINISTRATION EXPERIMENTS IN HEALTH COMMUNICATIONS ON THE APPLICATIONS TECHNOLOGY SATELLITE (ATS-6)

AUTHOR: CALDWELL, K. S.

SPONSORING AGENCY: VETERANS ADMINISTRATION, WASHINGTON, D. C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO USE ATS-6 TO COMMUNICATE MEDICAL INFORMATION BETWEEN VARIOUS REMOTE LOCATIONS IN APPALACHIA.

ABSTRACT: BECAUSE MANY OF THE VETERANS ADMINISTRATION HOSPITALS IN APPALACHIA ARE LOCATED GREAT DISTANCES FROM MEDICAL TEACHING FACILITIES, HIGH POWERED COMMUNICATION SATELLITES HAVE BEEN EMPLOYED TO FACILITATE QUALITY TWO-WAY COMMUNICATION BETWEEN MEDICAL PERSONNEL SCATTERED THROUGHOUT THE REGION. TO ACHIEVE DIAGNOSTIC, THERAPEUTIC, AND EDUCATIONAL PURPOSES, THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION'S (NASA) APPLICATIONS TECHNOLOGY-6 SATELLITE WAS FIELD TESTED IN FIVE DIFFERENT MODES: (1) VIDEO SEMINARS; (2) TELECONSULTATIONS; (3) GRAND ROUNDS; (4) OUT-PATIENT CLINICS; AND (5) COMPUTER-MEDIATED EVENTS. ALL FIVE MODES PROVIDED CLEAR COMMUNICATION AND SIGNIFICANTLY ALTERED THE CLIMATE OF THE TEN HOSPITALS INVOLVED IN THE EXPERIMENT. THE VIDEO SEMINARS WERE PARTICULARLY WELL RECEIVED. DETAILS OF THE PROGRAM EVALUATION ARE PROVIDED.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; APPALACHIA; HEALTH; VETERANS ADMINISTRATION; TELECOMMUNICATION; TELECONSULTATION; TELEMEDICINE; HOSPITAL; MEDICINE

UNIVERSITY OF DAYTON ACCESS NUMBER: 576

E-310

DATE OF DOCUMENT/TYPE: OCT 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: PEACESAT (PACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE) PROJECT SOCIAL APPLICATIONS: EARLY USES OF INTERNATIONAL TWO-WAY COMMUNICATIONS BY SATELLITE FOR SOCIAL DEVELOPMENT. REPORT 2.

AUTHOR: BYSTROM, J.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TWO-WAY COMMUNICATIONS IN THE SOUTH PACIFIC VIA SATELLITE

ABSTRACT: THE PEACESAT PROJECT (PACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE) IS AN INTERNATIONAL EDUCATION EXPERIMENT INVOLVING INSTITUTIONS IN 12 NATIONS OF THE PACIFIC BASIN. BEGUN IN 1969 AND IN FULL OPERATION SINCE 1971, THE PROJECT EXPERIMENTS WITH THE APPLICATION OF COMMUNICATIONS TECHNOLOGY AND NEW METHODS OF OPERATION ESPECIALLY DESIGNED FOR HEALTH, EDUCATION, AND COMMUNITY SERVICES. THIS REPORT DESCRIBES THE SOCIAL APPLICATIONS OF PEACESAT. SOME OF THE APPLICATIONS INCLUDE INTERCULTURAL EXCHANGE, DISSEMINATION INFORMATION FOR AGRICULTURE, TEACHING LAW BY SATELLITE, SOLVING COMMUNITY PROBLEMS, AND ANTICIPATING POTENTIAL MEDICAL AND HEALTH PROBLEMS. GUIDELINES FOR USING THE SYSTEM ARE INCLUDED ALONG WITH A CHRONOLOGY OF THE PROJECT.

SUBJECT: EDUCATIONAL APPLICATIONS LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: ATS-1; PEACESAT; EDUCATION; COMMUNICATION; SOUTH PACIFIC; HEALTH

UNIVERSITY OF DAYTON ACCESS NUMBER: 577

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DATE OF DOCUMENT/TYPE: JUN 75 / PROGRESS REPORT

TITLE OF DOCUMENT: STUDY OF EDUCATION SATELLITE COMMUNICATIONS DEMONSTRATION IN ALASKA: SOME TENTATIVE CONCLUSIONS, FOURTH BI-MONTHLY REPORT.

AUTHOR: POPPER, R.; HAGEBOECK, M.; SAVAGE, H.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, 1200 NINETEENTH STREET, N. W., WASHINGTON, D. C., 20308

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO USE SATELLITE TO ESTABLISH COMMUNICATIONS BETWEEN COMMUNITIES IN ALASKA.

ABSTRACT: EVALUATIVE DATA GATHERED IN VILLAGES THAT RECEIVED EDUCATIONAL BROADCASTS DURING THE EDUCATIONAL SATELLITE COMMUNICATIONS DEMONSTRATIONS (ESCD) IN RURAL ALASKA ARE SUMMARIZED, AND POLICY CONCLUSIONS ARE DRAWN. DATA SOURCES INCLUDED INTERVIEWS WITH LOCAL RESIDENTS, LOGS AND TIME RECORDS, AND CONFERENCE TRANSCRIPTS. CONCLUSIONS ARE PRESENTED WITH REGARD TO LEVELS OF POLICY, TECHNOLOGICAL CONSIDERATIONS, THE TYPES AND USE OF EDUCATIONAL MATERIALS, AND VILLAGE RESPONSES TO THE DEMONSTRATION. COMMENTS ON VILLAGE USE OF TELEVISION IN GENERAL AND ON THE FUTURE OF TELEVISION IN RURAL ALASKA ARE ALSO PRESENTED. THE APPENDIXES INCLUDE A BRIEF DESCRIPTION OF THE PARTICIPATING VILLAGES, SAMPLES OF THE FORMS USED FOR DATA COLLECTION, AND OUTLINES OF CONFERENCES HELD TO EVALUATE THE PROJECT. THE SATELLITE USED WAS THE APPLIED TECHNOLOGY SATELLITE (ATS-6).

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
VOICE COMMUNICATIONS

KEYWORDS: ATS-6; ALASKA; EDUCATION; COMMUNICATIONS; TELECOMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 578

E-312

DATE OF DOCUMENT/TYPE: FEB 76 / TECHNICAL REPORT

TITLE OF DOCUMENT: TELEMEDICINE IN ALASKA: THE ATS-6 SATELLITE BIOMEDICAL DEMONSTRATION

AUTHOR: FOSTER, D.; PARKER, E.; HUDSON, H.

SPONSORING AGENCY: LISTER HILL NATIONAL CENTER FOR BIOMEDICAL COMMUNICATION, NATIONAL LIBRARY OF MEDICINE, BETHESDA, MARYLAND

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DEMONSTRATE THE USE OF SATELLITE COMMUNICATIONS FOR HEALTH CARE IN THE HARSH ENVIRONMENT OF ALASKA.

ABSTRACT: A DEMONSTRATION PROJECT EXPLORED THE POTENTIAL OF SATELLITE VIDEO CONSULTATION TO IMPROVE THE QUALITY OF RURAL HEALTH CARE IN ALASKA. SATELLITE GROUND STATIONS PERMITTING BOTH TRANSMISSION AND RECEPTION OF BLACK AND WHITE TELEVISION WERE INSTALLED AT CLINICS IN FAIRBANKS, FORT YUKON, GALENA, AND TANANA. RECEIVE-ONLY TELEVISION CAPABILITY WAS INSTALLED AT THE ALASKA NATIVE MEDICAL CENTER IN ANCHORAGE. AS PART OF THE PROJECT, A CENTRALIZED, COMPUTER-BASED, PROBLEM-ORIENTED MEDICAL RECORD SYSTEM, CALLED THE HEALTH INFORMATION SYSTEMS WAS INTRODUCED. SATELLITE VIDEO CONSULTATION WAS SHOWN TO BE USEFUL FOR PRACTICALLY ANY MEDICAL PROBLEM, CRUCIAL TO SOME CASES, AND USABLE BY HEALTH CARE PROVIDERS AT ALL LEVELS OF TRAINING. THE HEALTH INFORMATION SYSTEM WAS JUDGED VALUABLE BY ALL PARTICIPANTS IN THE DEMONSTRATION, AND IT WAS RECOMMENDED THAT IT BE ESTABLISHED PERMANENTLY AND EXPANDED TO THE ENTIRE STATE OF ALASKA. FORMS USED AND DATA ARE INCLUDED.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; ALASKA; SATELLITE; COMMUNICATION; TELECOMMUNICATION; TELMEDICINE; MEDICINE; VIDEO; TELEVISION

UNIVERSITY OF DAYTON ACCESS NUMBER: 579

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DATE OF DOCUMENT/TYPE: 12 - 14 AUG 74 / PAPER

TITLE OF DOCUMENT: SATELLITE COMMUNICATION APPLIED TO THE NEEDS OF DEVELOPING AREAS: THE PEACESAT EXPERIMENT.

AUTHOR: BYSTROM, J.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO STUDY THE APPLICATION OF COMMUNICATION SATELLITES IN MEETING THE SOCIAL REQUIREMENTS OF REMOTE AREAS WITH LIMITED INDUSTRIALIZATION.

ABSTRACT: KNOWN AS THE PEACESAT PROJECT (PACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE) AN EXPERIMENTAL INTERNATIONAL EDUCATIONAL SATELLITE NETWORK IN DAILY OPERATION FOR THREE YEARS NOW INTERCONNECTS INSTITUTIONS IN ELEVEN NATIONS AND JURISDICTIONS IN THE PACIFIC OCEAN AREA USING THE NASA ATS-1 SATELLITE. THE OBJECT IS TO STUDY THE APPLICATION OF COMMUNICATION SATELLITES IN MEETING THE SOCIAL REQUIREMENTS OF REMOTE AREAS WITH LIMITED INDUSTRIALIZATION. SPECIFICATIONS FOR THE NETWORK INCLUDE LOW COST GROUND TERMINALS, TWO-WAY INTERACTIVE CAPABILITY AT ALL LOCATIONS, VOICE GRADE CIRCUIT, LOCAL CONTROL AND OPERATION OF TERMINALS AND COOPERATIVE MANAGEMENT. VOICE AND FACSIMILE ARE MEDIA OF EXCHANGE. PREPARED SOFTWARE IS DE-EMPHASIZED. EXPERIMENTS INCLUDE CLASSROOM INSTRUCTION, PROFESSIONAL SEMINARS, COMMUNITY INTERACTION, LIBRARY NETWORKING, RESEARCH PROJECT MANAGEMENT, EPIDEMIC CONTROL, NEWS NETWORKING, AND ADMINISTRATIVE SEMINARS.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
FACSIMILE

KEYWORDS: TELECOMMUNICATION SYSTEMS; SATELLITE RELAY; EDUCATION; ATS-1; COMMUNICATION SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 580

DATE OF DOCUMENT/TYPE: JULY 73 / JOURNAL ARTICLE

TITLE OF DOCUMENT: DRY AIR INTRUSION INTO A LOW-LEVEL MOIST TONGUE AS VIEWED BY ATS-3

AUTHOR: MILLER, J. A.

SATELLITE: ATS-3

ABSTRACT: SATELLITE IMAGERY RECEIVED FROM ATS 3, ON JANUARY 18, 1973, GAVE A VIVID PICTURE OF A DRY AIR INTRUSION. IT IS POINTED OUT THAT ONE OF THE PRIME MECHANISMS RESPONSIBLE FOR THE RELEASE OF CONVECTIVE INSTABILITY IS THE INTRUSION OF DRY AIR AT LOW OR MIDDLE LEVELS IN THE TROPOSPHERE INTO OR OVER THE LOW-LEVEL MOIST TONGUE. IT HAD BEEN STATED BY MILLER (1972) THAT DRY AIR INTRUSIONS APPARENTLY PROVIDE A MAJOR CONTRIBUTION TO THE TRIGGER MECHANISM IN THE MAJORITY OF TORNADO SITUATIONS.

SUBJECT: METEOROLOGY

KEYWORDS: AIR MASSES; ATS-3; CLOUD PHOTOGRAPHS; TORNADOES; CONVECTION CURRENTS; TROPOSPHERE; VERTICAL AIR CURRENTS

JOURNAL TITLE: MONTHLY WEATHER REVIEW, VOLUME 101, PAGES 594, 595

UNIVERSITY OF DAYTON ACCESS NUMBER: 581

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DATE OF DOCUMENT/TYPE: JAN 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: HEAT AND MOISTURE BUDGET ANALYSES USING BOMEX DATA

AUTHOR: MITTA, T.; ESSENSEN, S.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO EXAMINE LARGE-SCALE HEAT AND MOISTURE BUDGETS OVER THE TROPICAL ATLANTIC OCEAN

ABSTRACT: LARGE-SCALE HEAT AND MOISTURE BUDGETS OVER THE TROPICAL ATLANTIC OCEAN ARE EXAMINED DURING PHASE 3 (JUNE 22-30, 1969) OF THE BARBADOS OCEANOGRAPHIC AND METEOROLOGICAL EXPERIMENT. FROM THE SATELLITE CLOUD PHOTOGRAPHS OF ATS-3, THE ANALYZED PERIOD IS SUBDIVIDED INTO AN UNDISTURBED PART AND A DISTURBED PART. DURING THE UNDISTURBED PERIOD, DOWNWARD MOTION PREDOMINATES FROM THE SURFACE TO ABOUT 500 MB AND A LARGE APPARENT HEAT SINK AND APPARENT MOISTURE SOURCE ARE FOUND NEAR THE TOP OF THE TRADE INVERSION LAYER. THE UPWARD HEAT FLUX DUE TO CUMULUS CLOUDS IS CONFINED BELOW THE 700-MB LEVEL. ON THE OTHER HAND, DURING THE RELATIVELY DISTURBED PERIOD, UPWARD MOTION TAKES PLACE AT LOW LEVELS AND THE HEAT FLUX DUE TO CUMULUS CONVECTION EXTENDS TO AT LEAST 500 MB. VALUES OF THE TOTAL HEAT FLUX ESTIMATED BY LARGE-SCALE BUDGETS AGREE WELL WITH THOSE OBTAINED INDEPENDENTLY BY BULK AERODYNAMIC COMPUTATIONS.

SUBJECT: METEOROLOGY

KEYWORDS: ATLANTIC OCEAN; ATMOSPHERIC HEAT BUDGET; ATMOSPHERIC MOISTURE; ATS-3; OCEANOGRAPHY; CLOUD COVER; CLOUD PHOTOGRAPHS

JOURNAL TITLE: MONTHLY WEATHER REVIEW, VOLUME 102, PAGES 17-28

UNIVERSITY OF DAYTON ACCESS NUMBER: 582

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DATE OF DOCUMENT/TYPE: 17-19 JUNE 74 / PAPER

TITLE OF DOCUMENT: ATMOSPHERIC ATTENUATION PREDICTION IN THE MILLIMETER WAVE FREQUENCY BAND

AUTHOR: ANDRZEJEWSKI, S. J.

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DEVELOP PREDICTION TECHNIQUES EMPLOYING MEASURED GROUND RAIN RATE, SKY TEMPERATURE (T SUB S) AND WEATHER RADAR RETURN SIGNALS.

ABSTRACT: ONE OF THE OBJECTIVES OF THE MILLIMETER WAVE PROPAGATION EXPERIMENT CONDUCTED OVER A SPACECRAFT LINK UTILIZING THE NASA APPLICATIONS TECHNOLOGY SATELLITE (ATS-5) AND A GROUND STATION WAS TO DEVELOP PREDICTION TECHNIQUES EMPLOYING MEASURED GROUND RAIN RATE, SKY TEMPERATURE (T SUB S) AND WEATHER RADAR RETURN SIGNALS. PREDICTION EQUATIONS WERE DEVELOPED AND THE PREDICTED ATTENUATION VALUES COMPARED TO THE MEASURED 15.3 AND 31.65 GHZ ATTENUATION VALUES (A). RAIN RATE WAS NOT WELL CORRELATED WITH (A) ON A DIRECT TIME COMPARISON ANALYSIS DUE TO THE MASKING EFFECTS OF WIND, HEIGHT, AND THE INACCURACIES IN GEOMETRICAL ASPECTS OF THE STORMS. IT WAS FOUND THAT AN EMPIRICAL PREDICTION TECHNIQUE UTILIZING TIME-SHIFTED RAIN RATE WAS THE BEST TO EMPLOY. GOOD CORRELATIONS (EQUAL TO OR BETTER THAN 0.7) BETWEEN PREDICTED ATTENUATION AND (A) WERE OBTAINED FOR CERTAIN ATTENUATION INTERVALS BY EMPLOYING THE 16 GHZ AND 35 GHZ T SUB S VALUES. THE PREDICTION INTERVAL FOR (A) WAS FOUND TO BE 1 TO (10 TO 12) DB.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-5; ATMOSPHERIC ATTENUATION; MILLIMETER WAVES; ATMOSPHERIC TEMPERATURE; MICROWAVE ATTENUATION; RAIN; WIND EFFECTS

JOURNAL TITLE: INTERNATIONAL CONFERENCE ON COMMUNICATIONS, TENTH, MINNEAPOLIS, MINNESOTA

UNIVERSITY OF DAYTON ACCESS NUMBER: 583

E-317

DATE OF DOCUMENT/TYPE: SEPT 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE COMMUNITY SATELLITE I

AUTHOR: STAFF: NASA; FAIRCHILD INDUSTRIES

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO TEST A VARIETY OF NEW SPACE COMMUNICATIONS CONCEPTS.

ABSTRACT:

NASA'S APPLICATIONS TECHNOLOGY SATELLITE-6 IS BEING USED TO TEST A VARIETY OF NEW SPACE COMMUNICATIONS CONCEPTS REQUIRING THE USE OF A GEOSYNCHRONOUS-ORBIT SPACECRAFT. THESE INCLUDE BROADCAST OF HEALTH AND EDUCATION TELEVISION PROGRAMS TO SMALL, LOW-COST GROUND RECEIVING UNITS IN REMOTE REGIONS. OTHER STUDIES TO BE CONDUCTED ARE RELATED TO AERONAUTICAL AND MARITIME COMMUNICATIONS, POSITION-LOCATION, AND TRAFFIC-CONTROL TECHNIQUES. QUESTIONS CONCERNING SPACECRAFT TRACKING AND DATA RELAY ARE ALSO INVESTIGATED. THE 1,402 KG SPACECRAFT CONSISTS ESSENTIALLY OF AN EARTH VIEWING MODULE CONNECTED TO A DEPLOYABLE REFLECTOR ANTENNA. DETAILS REGARDING THE PLANNED EXPERIMENTS AND THE SPACECRAFT DESIGN ARE DISCUSSED AND A BRIEF HISTORY OF THE ATS PROGRAM IS PRESENTED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MARITIME TRAFFIC CONTROL  
MEDICAL/HEALTH APPLICATIONS VIDEO

KEYWORDS: ATS-6; COMMUNICATIONS SATELLITES; SOCIAL FACTORS; EDUCATIONAL TELEVISION; STATIONARY ORBITS; SATELLITE ANTENNAS

JOURNAL TITLE: SPACEFLIGHT, VOLUME 16, PAGES 340-350

UNIVERSITY OF DAYTON ACCESS NUMBER: 584

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DATE OF DOCUMENT/TYPE: OCT 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE COMMUNITY SATELLITE 2

AUTHOR: STAFF; NASA; FAIRCHILD INDUSTRIES

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO IMPROVE THE HEALTH CARE OF NATIVE ALASKANS IN REMOTE VILLAGES. TO IMPROVE HEALTH EDUCATION FOR PHYSICIANS WHOSE UNDERGRADUATE EXPERIENCES ARE ROOTED IN RURAL AMERICA. TO DEMONSTRATE THE POTENTIAL VALUE OF A DIRECT BROADCAST TV SYSTEM FOR EDUCATIONAL PURPOSES.

ABSTRACT:

AN EXPERIMENT WAS CONDUCTED TO IMPROVE THE HEALTH CARE OF NATIVE ALASKANS BY USING A SATELLITE FOR VOICE COMMUNICATION BETWEEN PUBLIC HEALTH SERVICE PHYSICIANS AND HEALTH AIDES IN REMOTE VILLAGES. IN AN EXTENSION OF THE EXPERIMENT THE AMOUNT AND KIND OF MEDICAL INFORMATION TRANSMITTED IS TO BE BROADENED. THE EXPERIMENTS ARE TO DEMONSTRATE WHETHER HEALTH CARE IN REMOTE AREAS CAN BE IMPROVED BY TELEMEDICINE. ANOTHER OBJECTIVE IS TO PROVIDE HEALTH EDUCATION FOR PHYSICIANS WHOSE UNDERGRADUATE EXPERIENCES ARE ROOTED IN RURAL AMERICA. ANOTHER INVESTIGATION REPORTED INVOLVES AN EXPERIMENT IN WHICH ATS-6 WILL BE USED TO CONDUCT TRACKING AND DATA RELAY EXPERIMENTS WITH AT LEAST TWO OTHER NASA SPACECRAFT. OTHER EXPERIMENTS ARE CONCERNED WITH DEMONSTRATING THE POTENTIAL VALUE OF A DIRECT BROADCAST TV SYSTEM FOR EDUCATIONAL PURPOSES.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
VOICE COMMUNICATIONS VIDEO

KEYWORDS: ATS-6; BIOMEDICAL DATA; VOICE COMMUNICATION; ALASKA; CLINICAL MEDICINE; TELEVISION TRANSMISSION

JOURNAL TITLE: SPACEFLIGHT, VOLUME 16, PAGES 369-375

UNIVERSITY OF DAYTON ACCESS NUMBER: 585

DATE OF DOCUMENT/TYPE: NOV 74 / JOURNAL ARTICLE

TITLE OF DOCUMENT: THE COMMUNITY SATELLITE 3

AUTHOR: STAFF: NASA; FAIRCHILD INDUSTRIES

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DISCUSS VARIOUS TECHNOLOGY EXPERIMENTS.

ABSTRACT: A NUMBER OF TECHNOLOGY EXPERIMENTS CONDUCTED WITH THE SATELLITE ARE DISCUSSED, GIVING ATTENTION TO A VERY HIGH RESOLUTION RADIONETER EXPERIMENT, A RADIO FREQUENCY INTERFERENCE EXPERIMENT, A MILLIMETER WAVE PROPAGATION EXPERIMENT, A COMSAT PROPAGATION EXPERIMENT, A CESIUM BOMBARDMENT ION ENGINE EXPERIMENT, AN ADVANCED THERMAL CONTROL FLIGHT EXPERIMENT, A SPACECRAFT ATTITUDE EXPERIMENT, A RADIO BEACON EXPERIMENT, AND ENVIRONMENTAL MEASUREMENTS EXPERIMENTS. SPECIAL INVESTIGATIONS CONSIDERED ARE RELATED TO THE USE OF A SPACECRAFT VIBRATION ACCELEROMETER, A QUARTZ CRYSTAL MICROBALANCE CONTAMINATION MONITOR, AND A TELEVISION CAMERA.

SUBJECT: METEOROLOGY TELEVISION

KEYWORDS: ATS-6; EARTH ENVIRONMENT; MILLIMETER WAVES; RADIO BEACONS; SATELLITE TELEVISION; SPACECRAFT CONTAMINATION; THERMAL CONTROL COATINGS

JOURNAL TITLE: SPACE FLIGHT, VOLUME 16, PAGES 423-426, 440

UNIVERSITY OF DAYTON ACCESS NUMBER: 586

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: APR 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: SATELLITE-TRACKED CUMULUS VELOCITIES

AUTHOR: FUJITA, T. T.; PEARL, E. W.; SHENK, W. E.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO REVIEW THE BASIC PROBLEMS OF INTERPRETING SATELLITE-TRACKED LOW-CLOUD VELOCITIES

ABSTRACT: BASIC PROBLEMS IN THE INTERPRETATION OF SATELLITE-TRACKED LOW-CLOUD VELOCITIES ARE REVIEWED. THE METRACOM SYSTEM OF CLOUD VELOCITY COMPUTATION IS OUTLINED, AND CAUTION IS URGED IN CONVERTING CLOUD VELOCITIES INTO WIND VELOCITIES. THE MOTION OF VARIOUS CUMULUS CELLS OVER SPRINGFIELD, MO., BARBADOS, AND TAMPA, FLORIDA, IS ANALYZED. IT IS SHOWN THAT MULTITURRET CELLS DO NOT ALWAYS MOVE WITH THE WIND, THAT ADDITION AND DELETION OF TURRETS BELONGING TO A SPECIFIC CELL MAY CAUSE ERRATIC MOTION IN A TRACER CELL, AND THAT CUMULUS TURRETS BETWEEN 0.3 AND 2 MILES IN SIZE ARE THE BEST TARGETS FOR INFERRING THE MEAN WIND VELOCITY WITHIN THE SUBCLOUD LAYERS. IT IS CONCLUDED THAT THE ACCURACY OF WIND VELOCITY ESTIMATES WILL BE NO BETTER THAN 2 METERS/SEC UNLESS THE PHYSICAL AND DYNAMIC CHARACTERISTICS OF CUMULUS MOTION ARE FURTHER INVESTIGATED.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; CLOUD PHOTOGRAPHS; CUMULUS CLOUDS; WIND VELOCITY MEASUREMENT; PHOTO INTERPRETATION

JOURNAL TITLE: JOURNAL OF APPLIED METEOROLOGY, VOLUME 14, PAGES 407-413

UNIVERSITY OF DAYTON ACCESS NUMBER: 587



DATE OF DOCUMENT/TYPE: MAR 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: TELEVISION FROM INDIA

AUTHOR: BAIRD, G.; MCKENNA, T.; HONGAIN, E. O.; BIRKILL, S. J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO RE-BROADCAST DOMESTIC TELEVISION TO RURAL PARTS OF INDIA.

ABSTRACT:

THE ATS-6 SATELLITE, AT PRESENT IN GEOSTATIONARY ORBIT AT LONGITUDE 35 DEGREES E OVER LAKE VICTORIA IN AFRICA, IS BEING USED TO RE-BROADCAST DOMESTIC TELEVISION TO RURAL PARTS OF INDIA. THE TRANSMISSIONS ARE OF AN EXPERIMENTAL NATURE AND ARE SCHEDULED TO LAST ONLY UNTIL AUGUST 1976. THEY ARE ON A FREQUENCY OF 860MHZ WITH F.M. VISION ON 625 LINES, 50 FIELDS/S. SOUND IS ALSO F.M., WITH TWO CHANNELS, ONE AT 5.5MHZ AND THE OTHER AT 6.0MHZ ABOVE BASEBAND. ALTHOUGH THE 30FT PARABOLIC ANTENNA ON THE SATELLITE IS POINTING AT INDIA AND GIVING A 2.8 DEGREE BEAM, EUROPE IS AT MOST ABOUT 12 DEGREES OFF THE BEAM AXIS SO THAT SIGNALS OF APPROXIMATELY 30DB DOWN OR LESS ON THE ON-AXIS SIGNAL CAN BE EXPECTED, CORRESPONDING TO AN EXPECTED FIELD STRENGTH OF 3.3 MU V/M. REPORTS ARE GIVEN FROM TWO EXPERIMENTAL STATIONS, ONE IN EIRE AND THE OTHER IN ENGLAND, WHERE THE INDIAN TELEVISION PICTURES HAVE BEEN SUCCESSFULLY RECEIVED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
TELEVISION

KEYWORDS: ATS-6; TELEVISION BROADCASTING; INDIA; TELECOMMUNICATION LINKS

JOURNAL TITLE: WIRELESS WORLD, VOLUME 82, PAGES 68-70

UNIVERSITY OF DAYTON ACCESS NUMBER: 586

E-322

DATE OF DOCUMENT/TYPE: OCT 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: SOME EXPERIENCES IN PREPARING FOR A SATELLITE TELEVISION EXPERIMENT FOR RURAL INDIA

AUTHOR: PAL, Y.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO REACH A FEW THOUSAND REMOTE INDIAN VILLAGES VIA SATELLITE BROADCAST TELEVISION .

ABSTRACT: A LARGE SCALE EXPERIMENT WILL BE CONDUCTED IN INDIA, BEGINNING MIDDLE OF 1975, TO REACH A FEW THOUSAND REMOTE INDIAN VILLAGES VIA SATELLITE BROADCAST TELEVISION. THE PAPER DISCUSSES THE RESEARCH AND DEVELOPMENT ASPECTS OF THE TECHNOLOGICAL AND SOFTWARE COMPONENTS OF THE EXPERIMENT, THE OPERATIONAL PROBLEMS AND SOLUTIONS ADOPTED, AS ALSO THE HOPES AND FEARS CONCERNING ITS OUTCOME. SOME OF THE ALREADY REALIZED MANAGERIAL, SOCIAL AND TECHNOLOGICAL SPIN-OFFS OF THIS MULTIFACETED EXPERIMENT ARE POINTED OUT.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS TELEVISION

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; INDIAN SPACE PROGRAM; SATELLITE TELEVISION; INTERNATIONAL COOPERATION; NASA PROGRAMS; OPERATIONAL PROBLEMS; TECHNOLOGY ASSESSMENT

JOURNAL TITLE: ROYAL SOCIETY, VOLUME 345, ISSUE 1643, PAGES 437-466

UNIVERSITY OF DAYTON ACCESS NUMBER: 589

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DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 - RADIO BEACON EXPERIMENT THE FIRST YEARS --- IONOSPHERIC AND SATELLITE-TO-GROUND ELECTRON CONTENT

AUTHOR: GAVIES, K.; FRITZ, R. B.; GRUBB, R. N.; JONES, J. E.

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO MEASURE THE TOTAL ELECTRON CONTENT AND THE IONOSPHERIC ELECTRON CONTENT BETWEEN THE SATELLITE AND GROUND.

ABSTRACT: THE RADIO BEACON EXPERIMENT ABOARD APPLICATIONS TECHNOLOGY SATELLITE-6 (ATS-6) IS DESIGNED TO MEASURE THE TOTAL ELECTRON CONTENT AND THE IONOSPHERIC ELECTRON CONTENT BETWEEN THE SATELLITE AND GROUND. THE SPACEBORNE BEACON TRANSMITS SIGNALS ON FREQUENCIES OF 40, 140, AND 360 MHZ WITH AMPLITUDE MODULATIONS OF 1 MHZ AND/OR 0.1 MHZ FOR THE MEASUREMENT OF MODULATION PHASE, FARADAY ROTATION, AND AMPLITUDE. THE MODULATION PHASE DELAYS ARE CALIBRATED IN THE SATELLITE AND IN THE GROUND EQUIPMENT, AND THE POLARIZATION OF THE EMITTED SIGNALS ARE PREDETERMINED BY STANDARD ANTENNA RANGE TECHNIQUES. THE DESIGN OF THE ATS-6 RECEIVER IN BOULDER, COLORADO, IS DISCUSSED. THE ANTENNAE ARE OF THE SHORT BACKFIRE TYPE DESCRIBED BY EHRENSPECK (1967), WITH NOMINAL GAINS OF 13, 19, AND 22 DB AT 40, 140, AND 360 MHZ, RESPECTIVELY. DATA RECORDING AND OVERALL SUPERVISION OF THE RECEIVER IS CARRIED OUT BY A 16-BIT MINICOMPUTER WITH 8 K OF MEMORY. OVERALL PERFORMANCE OF THE SYSTEM IS SATISFACTORY. SAMPLE DATA ON THE MONTHLY MEDIAN HOURLY VALUES OF THE TOTAL ELECTRON CONTENT, IONOSPHERIC CONTENT, AND SHAPE FACTOR SHOW DISTINCT SEASONAL AND DIURNAL VARIATIONS.

SUBJECT: RADIO TRANSMISSION

KEYWORDS: ATS-6; IONOSPHERIC ELECTRON DENSITY; RADIO BEACONS; CARRIER FREQUENCIES; RADIO RECEIVERS; RADIO TRANSMISSION; FARADAY EFFECT; POLARIZED ELECTROMAGNETIC RADIATION

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME ASE-11, PAGES 1103-1109

UNIVERSITY OF DAYTON ACCESS NUMBER: 590

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 EXPERIMENT SUMMARY

AUTHOR: CORRIGAN, J. P.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: A GENERAL OVERVIEW IS GIVEN OF EXPERIMENT PLANNING AND IMPLEMENTATION FOR THE ATS-6.

ABSTRACT: A GENERAL OVERVIEW IS GIVEN OF EXPERIMENT PLANNING AND IMPLEMENTATION FOR THE ATS-6. INCLUDED IN THE REVIEW ARE DISCUSSIONS OF PROJECT OFFICE ACTIVITIES, EXPERIMENT SELECTION, SPACECRAFT IMPLEMENTATION, GROUND TERMINAL IMPLEMENTATION, THE OPERATIONS CONTROL CENTER, AND THE INFORMATION PROCESSING DIVISION. A TABLE IS INCLUDED SUMMARIZING THE VARIOUS EXPERIMENTS AMONG WHICH ARE COMMUNICATIONS, SCIENTIFIC AND TECHNOLOGICAL EXPERIMENTS.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS METEOROLOGY  
VOICE COMMUNICATIONS

KEYWORDS: ATS-6; COMMUNICATION SATELLITE; GROUND SUPPORT SYSTEMS; NET EXPERIMENT; TERMINAL FACILITIES

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME ASE-11, PAGES 1004-1014

UNIVERSITY OF DAYTON ACCESS NUMBER: 591

E-324

DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 DESCRIPTION AND PERFORMANCE

AUTHOR: REDISCH, M. N.

SATELLITE: ATS-6

ABSTRACT: THE APPLICATIONS TECHNOLOGY SATELLITE-6 EMBODIES A GEOSYNCHRONOUS TECHNOLOGY THAT IS SENSITIVE ENOUGH TO RECEIVE SIGNALS FROM SIMPLE INEXPENSIVE EARTH-BASED TERMINALS AND IS POWERFUL ENOUGH TO RELAY COLOR TELEVISION AND OTHER HIGH-QUALITY SIGNALS TO THESE TERMINALS. THIS WAS ACCOMPLISHED BY DEPLOYING A 9.1-M PARABOLIC REFLECTOR ANTENNA IN SPACE, BY PERFORMING PRECISION ATTITUDE MANEUVERS ON COMMANDS FROM THE EARTH TO POINT THE REFLECTOR TO SELECTED SPOTS ON THE EARTH'S SURFACE, AND BY PROVIDING COMMUNICATIONS LINKS AND NECESSARY POWER TO RECEIVE AND REBROADCAST SIGNALS TRANSMITTED FROM THE GROUND. ALL MAJOR OBJECTIVES OF THE ATS PROGRAM HAVE BEEN SATISFIED, WITH SPECIFICATIONS BEING MET OR EXCEEDED.

SUBJECT: INFORMATION

KEYWORDS: ATS-6; PARABOLIC ANTENNAS; RADIO RELAY SYSTEM; SATELLITE TELEVISION; GROUND STATIONS; PARABOLIC REFLECTORS; PROPULSION SYSTEM PERFORMANCE

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME AES-11, PAGES 994-1003

UNIVERSITY OF DAYTON ACCESS NUMBER: 592

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OF POOR QUALITY

DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 RADIO FREQUENCY INTERFERENCE MEASUREMENT EXPERIMENT

AUTHOR: HENRY, V. F.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: INVESTIGATE C-BAND TERRESTRIAL NOISE SOURCES (GEOGRAPHICAL NOISE POWER DISTRIBUTION)

ABSTRACT: THE FREQUENCY BAND FROM 5.925 TO 6.425 GHZ IS SERVED BY FIXED SATELLITES AND BY TERRESTRIAL MICROWAVE LINKS. THERE IS A POSSIBILITY OF MICROWAVE LINKS POINTED AT THE HORIZON CAUSING INTERFERENCE TO THE UPLINKS OF DOMESTIC AND INTERNATIONAL COMMUNICATIONS SATELLITES SHARING THE SAME FREQUENCY BAND. A MATHEMATICAL MODEL HAS BEEN DERIVED FOR PREDICTING THE FIELDS AT GEOSTATIONARY ORBIT BASED ON THE KNOWN CHARACTERISTICS AND KNOWN DISTRIBUTION OF THE TERRESTRIAL MICROWAVE RELAY SYSTEM. THE APPLICATIONS TECHNOLOGY SATELLITE-6 (ATS-6) IS SENSITIVE TO SIGNALS IN THE RANGE OF 10 DBM RADIATED IN THE DIRECTION OF THE SATELLITE. SIGNALS IN THE RANGE OF 10-30 DBM HAVE BEEN RECORDED OVER VARIOUS PARTS OF THE UNITED STATES.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ELECTROMAGNETIC MEASUREMENT; MICROWAVE TRANSMISSION; RADIO FREQUENCY INTERFERENCE; RADIO RELAY SYSTEMS

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME AES-11, PAGES 1059-1066

UNIVERSITY OF DAYTON ACCESS NUMBER: 593

E-326

DATE OF DOCUMENT/TYPE: NOV 75 6 JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 PRELIMINARY RESULTS FROM THE 13/18-GHZ COMSAT PROPAGATION EXPERIMENT

AUTHOR: HYDE, G.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: COLLECT DATA ON ATTENUATION DUE TO PRECIPITATION, DETERMINE POWER MARGINS NEEDED IN SPACECRAFT COMMUNICATIONS SYSTEMS.

ABSTRACT: THE 13/18-GHZ COMSAT PROPAGATION EXPERIMENT (CPE) IS REVIEWED, THE DATA ACQUISITION AND PROCESSING ARE DISCUSSED, AND SAMPLES OF PRELIMINARY RESULTS ARE PRESENTED. THE NEED FOR MEASUREMENTS OF BOTH HYDROMETEOR-INDUCED ATTENUATION STATISTICS AND DIVERSITY EFFECTIVENESS IS BROUGHT OUT. THE FACILITATION OF THE EXPERIMENT - CPE DUAL FREQUENCY AND DIVERSITY SITE LOCATION, THE CPE GROUND TRANSMIT TERMINALS, THE CPE TRANSPONDER ON APPLICATIONS TECHNOLOGY SATELLITE-6 (ATS-6), AND THE CPE RECEIVER AND DATA ACQUISITION SYSTEM - IS BRIEFLY EXAMINED. THE ON-LINE PREPROCESSING OF THE RECEIVED SIGNAL IS REVIEWED, FOLLOWED BY A DISCUSSION OF THE OFF-LINE PROCESSING OF THIS DATABASE TO REMOVE SIGNAL FLUCTUATIONS NOT DUE TO HYDROMETERS. FINALLY, SAMPLES OF THE RESULTS OF FIRST-LEVEL ANALYSIS OF THE RESULTANT DATA FOR THE 18-GHZ DIVERSITY SITE NEAR BOSTON, MASSACHUSETTES, AND FOR THE DUAL FREQUENCY 13/18-GHZ SITE NEAR DETROIT, MICHIGAN, ARE PRESENTED AND DISCUSSED.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-6; COMSAT PROGRAM; MICROWAVE TRANSMISSION; RECEPTION DIVERSITY; HYDROMETEOROLOGY; SIGNAL STABILIZATION

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME AES-11, PAGES 1084-1094

UNIVERSITY OF DAYTON ACCESS NUMBER: 594

DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 - MILLIMETER WAVE PROPAGATION AND COMMUNICATIONS EXPERIMENTS AT 20 AND 30 GHZ

AUTHOR: IF CLITO, L. J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: INVESTIGATION OF ATMOSPHERIC PROPAGATION AT MMV FREQUENCIES. FEASIBILITY OF THE APPLICATION OF MMV COMMUNICATIONS SYSTEMS.

ABSTRACT: THE ATS-6 MILLIMETER WAVE EXPERIMENT HAS PROVIDED THE FIRST DIRECT MEASUREMENTS OF 20- AND 30-GHZ EARTH-SPACE LINKS FROM AN ORBITING SATELLITE. STUDIES AT ELEVEN LOCATIONS IN THE CONTINENTAL UNITED STATES WERE DIRECTED AT AN EVALUATION OF RAIN ATTENUATION EFFECTS, SCINTILLATIONS, DEPOLARIZATION, SITE DIVERSITY, COHERENCE BANDWIDTH, AND ANALOG AND DIGITAL COMMUNICATIONS TECHNIQUES. IN ADDITION TO DIRECT MEASUREMENTS ON THE 20- AND 30-GHZ LINKS, METHODS OF ATTENUATION PREDICTION WITH RADARS, RAIN GAUGES, AND RADICMETERS WERE DEVELOPED AND COMPARED WITH THE DIRECTLY MEASURED ATTENUATION. THIS PAPER PRESENTS A REVIEW OF THE MAJOR RESULTS OF THE FIRST YEAR OF MEASUREMENTS WITH ATS-6, WITH EMPHASIS ON THE IMPACT OF THE MEASUREMENTS ON MILLIMETER WAVE SPACE SYSTEMS DESIGN.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-6; ATMOSPHERIC ATTENUATION; MILLIMETER WAVES; WAVE PROPAGATION; BANDWIDTH; DEPOLARIZATION; SCINTILLATION

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME AES-11, PAGES 1067-1083

UNIVERSITY OF DAYTON ACCESS NUMBER: 595

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DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 TELEVISION RELAY USING SMALL TERMINALS EXPERIMENT

AUTHOR: MILLER, J. E.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO ADVANCE AND PROMOTE THE TECHNOLOGY OF BROADCASTING SATELLITES.

ABSTRACT: THE TELEVISION RELAY USING SMALL TERMINALS (TRUST) EXPERIMENT WAS DESIGNED TO ADVANCE AND PROMOTE THE TECHNOLOGY OF BROADCASTING SATELLITES. A CONSTANT ENVELOPE TELEVISION FM SIGNAL WAS TRANSMITTED AT C BAND TO THE ATS-6 EARTH COVERAGE HORN AND RETRANSMITTED AT 860 MHZ THROUGH THE 9-M ANTENNA TO A LOW-COST DIRECT-RECEIVE GROUND STATION. THE EXPERIMENT DEMONSTRATED THAT HIGH-QUALITY TELEVISION AND AUDIO CAN BE RECEIVED BY LOW-COST DIRECT-RECEIVE GROUND STATIONS. PREDETECTION BANDWIDTH IS SIGNIFICANTLY LESS THAN PREDICTED BY CARSON'S RULE CAN BE UTILIZED WITH MINIMAL DEGRADATION OF EITHER MONOCHROME OR COLOR PICTURES. TWO SEPARATE TECHNIQUES OF DUAL AUDIO CHANNEL TRANSMISSION HAVE BEEN DEMONSTRATED TO BE SUITABLE FOR LOW-COST APPLICATIONS.

SUBJECT: BROADCASTING DATA TRANSMISSION VOICE COMMUNICATIONS  
TELEVISION RELAY VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; GROUND STATIONS; BANDWIDTH; VIDEO COMMUNICATIONS; C BAND; RADIO RELAY SYSTEMS; VOICE COMMUNICATIONS

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME ASE-11, PAGES 1030-1047

UNIVERSITY OF DAYTON ACCESS NUMBER: 596

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DATE OF DOCUMENT/TYPE: NOV 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 SATELLITE INSTRUCTIONAL TELEVISION EXPERIMENT

AUTHOR: MILLER, J. E.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DEMONSTRATE RELAY BY GEOSYNCHRONOUS SATELLITE OF CCIR QUALITY TELEVISION FROM A HIGH-POWERED PROGRAM TRANSMITTING STATION TO SMALL MODIFIED STANDARD TV RECEIVERS LOCATED THROUGHOUT RURAL INDIA AND TO URBAN REBROADCAST STATIONS.

ABSTRACT: THE SATELLITE INSTRUCTIONAL TELEVISION EXPERIMENT (SITE) IS SCHEDULED FOR THE SECOND YEAR OF SATELLITE OPERATION. APPLICATIONS TECHNOLOGY SATELLITE (ATS-6) WILL RECEIVE C-BAND VIDEO SIGNALS FROM AHMEDABAD AND DELHI, INDIA, AND WILL RETRANSMIT THE VIDEO AND TWO AUDIO SUBCARRIERS AT 860 MHZ TO 6 CLUSTERS OF 400 DIRECT-RECEIVE STATIONS FOR A TOTAL OF 2400 DIRECT-RECEIVE STATIONS. MORNING PROGRAMS OF 1.5 HOURS PER DAY ARE DESIGNED FOR CLASSROOM USE, AND EVENING PROGRAMS OF 2.5 HOURS DURATION ARE DESIGNED FOR VILLAGE ADULT EDUCATION. INDIAN PRODUCTION ANTENNAS AND TELEVISION SETS HAVE BEEN TESTED AND FOUND TO MEET SPECIFICATIONS, AND A SUCCESSFUL EXPERIMENT IS ANTICIPATED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; GROUND STATIONS; INDIAN SPACE PROGRAM; C BAND; VIDEO COMMUNICATIONS; VOICE COMMUNICATIONS; MICROWAVE TRANSMISSION

JOURNAL TITLE: IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, VOLUME ASE-111, PAGES 1033-1037

UNIVERSITY OF DAYTON ACCESS NUMBER: 597

E-330

DATE OF DOCUMENT/TYPE: MAR 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: A TIME COMPARISON EXPERIMENT PERFORMED BY SSRA SYSTEM VIA ATS-1

AUTHOR: YAMAMOTO, H.; HARAKA, K.; SABURI, Y.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO COMPARE TIME BETWEEN KASHIMA, JAPAN GROUND STATION AND THE ROSMAN U.S. GROUND STATION USING ATS-1 SATELLITE.

ABSTRACT: A TIME COMPARISON EXPERIMENT BETWEEN THE KASHIMA, JAPAN GROUND STATION AND THE ROSMAN U.S. GROUND STATION WAS PERFORMED FROM AUGUST 19 TO 28, 1975 USING THE ATS-1 SATELLITE. THE COMMUNICATION SYSTEM EMPLOYED WAS SSRA (SPREAD SPECTRUM RANDOM ACCESS), OPERATING IN THE SHF BAND, AND BOTH GROUND STATIONS USED COMMERCIAL CESIUM CLOCKS WITH HIGH PERFORMANCE TUBES. AN ERROR ANALYSIS WAS PERFORMED, WITH ATTENTION DRAWN TO INSTRUMENT ERRORS, ERRORS DUE TO SATELLITE DRIFT, ERRORS DUE TO SYSTEM DELAYS, AND ERRORS DUE TO RADIO WAVE REFRACTION IN THE IONOSPHERE. RESULTS SHOWED THAT THE SSRA SYSTEM CAN PERFORM THE SATELLITE TIME COMPARISON WITH VERY HIGH RESOLUTION, BETTER THAN A FEW NANOSECONDS.

SUBJECT: DATA TRANSMISSION

KEYWORDS: ATS-1; SYNCHRONISM; TIME LAG; TIME SIGNALS; ATOMIC CLOCKS; ERROR ANALYSIS; ERROR SIGNALS; INSTRUMENT ERRORS; TIME MEASUREMENT; SIGNAL RECEPTION

JOURNAL TITLE: RADIO RESEARCH LABORATORIES, VOLUME 23, PAGES 85-103

UNIVERSITY OF DAYTON ACCESS NUMBER: 598

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DATE OF DOCUMENT/TYPE: JUNE 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: A COMPARISON OF LOW-CLOUD SATELLITE WIND ESTIMATES WITH ANALYSES BASED ON AIRCRAFT OBSERVATIONS IN A DISTURBED TROPICAL REGIME

AUTHOR: SMITH, C. L.; HASLER, A. F.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: LOW-LEVEL, ATS-3 SATELLITE WIND ESTIMATES ARE COMPARED WITH VALUES OF WIND DIRECTION AND SPEED INTERPOLATED FROM ANALYSES BASED ON RESEARCH AIRCRAFT OBSERVATIONS OF A SYNOPTIC TROPICAL WAVE.

ABSTRACT: LOW-LEVEL, ATS-3 SATELLITE WIND ESTIMATES ARE COMPARED WITH VALUES OF WIND DIRECTION AND SPEED INTERPOLATED FROM ANALYSES BASED ON RESEARCH AIRCRAFT OBSERVATIONS OF A SYNOPTIC TROPICAL WAVE OF MODERATE INTENSITY ON 26 JULY 1969 DURING BOMEX. THE DATA WERE STRATIFIED ACCORDING TO WHETHER A SATELLITE ESTIMATE WAS POSITIONED IN ONE OF THREE REGIONS: NAMELY, EAST OR WEST OF THE WAVE TROUGH OR NORTH OF THE DISTURBANCE CENTER. WHEN CLOUD AND ANALYSIS VECTOR MAGNITUDE DEVIATIONS WERE COMPUTED, REGIONAL DIFFERENCES BECAME APPARENT. THESE DIFFERENCES ARE ATTRIBUTED TO THE PHYSICAL BEHAVIOR OF THE CLOUD TARGETS TRACKED UNDER THE INFLUENCE OF THE SURROUNDING LARGE-SCALE ENVIRONMENT.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; CLOUD COVER; METEOROLOGICAL RESEARCH AIRCRAFT; WIND DIRECTION; WIND VELOCITY; TROPICAL METEOROLOGY

JOURNAL TITLE: MONTHLY WEATHER REVIEW, VOLUME 104, PAGES 702-708

UNIVERSITY OF DAYTON ACCESS NUMBER: 599

DATE OF DOCUMENT/TYPE: MAR 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATTENUATION DIVERSITY MEASUREMENTS AT 20 AND 30 GHZ

AUTHOR: VOGEL, W. J.; STRAITON, A. W.; FANNIN, B. M.; WAGNER, N. K.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: INVESTIGATION OF ATMOSPHERIC PROPAGATION AT MILLIMETER WAVE FREQUENCIES. FEASIBILITY OF THE APPLICATION OF MILLIMETER WAVE COMMUNICATIONS SYSTEMS.

ABSTRACT: THE RESULTS OF DATA OBTAINED AT THE UNIVERSITY OF TEXAS AT AUSTIN IN CONJUNCTION WITH THE ATS-6 MILLIMETER WAVE EXPERIMENT ARE PRESENTED. ATTENUATION MEASUREMENTS AT 30 GHZ AND SKY NOISE DATA AT 20 GHZ WERE OBTAINED FOR 93 DAYS SIMULTANEOUSLY AT EACH OF TWO SITES SEPARATED BY 11 KM AND FOR 314 DAYS AT ONE SITE. A PLOT OF MAXIMUM OBSERVED CLOUD HEIGHT AGAINST MAXIMUM HOURLY ATTENUATION INDICATES THAT FOR A GIVEN ATTENUATION LEVEL A LOWER LIMIT IS SET FOR THE MAXIMUM CLOUD HEIGHT.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-6; ATMOSPHERIC ATTENUATION; MILLIMETER WAVES; RAIN; SATELLITE OBSERVATION; SIGNAL FADING

JOURNAL TITLE: RADIO SCIENCE, VOLUME 11, PAGES 167-174

UNIVERSITY OF DAYTON ACCESS NUMBER: 600

DATE OF DOCUMENT/TYPE: DEC 72 / FAPER

TITLE OF DOCUMENT: USING SATELLITES TO IMPROVE EFFICIENCY IN DELIVERY OF EDUCATIONAL SERVICES

AUTHOR: JAMISON, D.; RALL, J.

SPONSORING AGENCY: BUREAU OF EDUCATION FOR THE HANDICAPPED, (DHEW/OEI), WASHINGTON, D.C.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DEMONSTRATE USE OF ATS-3 TO PROVIDE COMPUTER-ASSISTED INSTRUCTION TO STUDENTS AT AN INDIAN PUEBLO IN NEW MEXICO

ABSTRACT: A DESCRIPTION IS PROVIDED OF A DEMONSTRATION USE OF THE ATS-3 SATELLITE TO PROVIDE COMPUTER-ASSISTED INSTRUCTION TO STUDENTS AT AN INDIAN PUEBLO IN NEW MEXICO FROM THE COMPUTER CENTER AT STANFORD UNIVERSITY'S INSTITUTE FOR MATHEMATICAL STUDIES IN THE SOCIAL SCIENCES. THE ROLE OF THIS AND OTHER TECHNOLOGIES IN IMPROVING PRODUCTIVITY AND EFFICIENCY IN EDUCATION ARE ALSO DISCUSSED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
VIDEO COMMUNICATIONS

KEYWORDS: ATS-3; AMERICAN INDIANS; COMPUTER ASSISTED INSTRUCTION; EDUCATIONAL IMPROVEMENT; TELECOMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 601

E-334

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OF POOR QUALITY

E-335

DATE OF DOCUMENT/TYPE: JUNE 74 / PAPER

TITLE OF DOCUMENT: BEYOND ATS-6: SOCIAL USES OF COMMUNICATIONS

AUTHOR: CATER, J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DISCUSS THE SOCIAL USES AND THE FUTURE OF THE COMMUNICATIONS SATELLITE.

ABSTRACT: A PANEL DISCUSSION WAS HELD TO EXAMINE THE EFFICACY OF THE APPLICATIONS TECHNOLOGY SATELLITES, POWERFUL COMMUNICATION SATELLITES DESIGNED TO SEND QUALITY SIGNALS TO LOW-COST GROUND TERMINALS. THE SATELLITES HAVE BEEN USED ON AN EXPERIMENTAL BASIS IN RURAL AMERICA, CANADA, AND INDIA. WHILE THE PANEL GENERALLY AGREED ON THE GREAT POTENTIAL OF THE SATELLITE, THEY ALSO IDENTIFIED UNRESOLVED PROBLEMS IN DEVELOPING THE NONCOMMERCIAL APPLICATIONS OF THE TECHNOLOGY. THE DISCUSSION FOCUSED ON THREE MAJOR TOPICS: (1) THE SIGNIFICANCE OF THE SATELLITE EXPERIMENT AND ITS LATER CANCELLATION; (2) THE ABILITY OF THE PRIVATE SECTOR TO DEVELOP COMMUNICATION SATELLITES FOR SOCIAL USES; AND (3) THE FUTURE OF THE COMMUNICATION SATELLITE.

SUBJECT: EDUCATIONAL APPLICATIONS TELECOMMUNICATIONS

KEYWORDS: COMMUNICATION SATELLITE; EDUCATIONAL TECHNOLOGY; ATS; ASPEN INSTITUTE; TELECOMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 602

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DATE OF DOCUMENT/TYPE: MARCH 75 / PAPER

TITLE OF DOCUMENT: ETHNIC MINORITIES AND TELECOMMUNICATIONS

AUTHOR: HAYES-HULL, M.

OBJECT OF EXPERIMENT: DISCUSSION OF COMMUNICATIONS TECHNOLOGY WITH REGARD TO MINORITIES

ABSTRACT: DEVELOPMENTS IN COMMUNICATIONS TECHNOLOGY SHOULD BECOME A MAJOR CONCERN OF MINORITIES (NATIVE AMERICANS AND AMERICANS OF AFRICAN, ASIAN, AND HISPANIC RACIAL OR ETHNIC ORIGIN). ALTHOUGH MINORITIES ARE DISILLUSIONED WITH BROADCAST TELEVISION BECAUSE TELEVISION DECISION MAKERS HAVE NOT BEEN SENSITIVE TO MINORITY NEEDS, THEY HAVE SHOWN INTEREST RECENTLY IN CABLE TELEVISION AS WELL AS IN OTHER COMMUNICATION TECHNOLOGIES -- SATELLITES, COMPUTERS, FIBRE OPTICS, AND LASERS. IN ORDER TO BECOME INVOLVED IN COMMUNICATIONS ON THE RESEARCH AND POLICY MAKING LEVELS, STUDENTS MUST BE EDUCATED IN COMMUNICATION TECHNOLOGY, AND BLACK COLLEGES SHOULD RECOGNIZE THAT TELECOMMUNICATIONS CAN LEAD TO A NEW WAY OF GENERATING REVENUE WHILE LEADING TO ECONOMIC AND COMMUNITY DEVELOPMENT.

SUBJECT: VOICE COMMUNICATIONS TELECOMMUNICATIONS VIDEO COMMUNICATIONS

KEYWORDS: TELECOMMUNICATIONS; CABLE TELEVISION; COMPUTERS; HIGHER EDUCATION; MINORITY GROUPS

UNIVERSITY OF DAYTON ACCESS NUMBER: 603



E-337

DATE OF DOCUMENT/TYPE: 3-5 JUNE 75 / PAPER

TITLE OF DOCUMENT: DEVELOPMENT AND TEST OF A CONFORMAL MICROSTRIP AIRBORNE PHASED ARRAY FOR USE WITH THE ATS-6 SATELLITE.

AUTHOR: STANFORD, G.; KLEIN, L.

SPONSORING AGENCY: U.S. DEPARTMENT OF TRANSPORTATION, WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DEVELOP AND TEST AN AIRFRAME-CONFORMABLE ALL-MICROSTRIP-DESIGN SIDE-MOUNTED PHASED ARRAY ANTENNA SYSTEM

ABSTRACT: AN AIRFRAME-CONFORMABLE ALL-MICROSTRIP-DESIGN SIDE-MOUNTED PHASED ARRAY ANTENNA SYSTEM WAS TESTED IN FLIGHT. TESTS OVER A RANGE OF RAPIDLY CHANGING TEMPERATURES REVEALED SATISFACTORY ELECTRICAL AND MECHANICAL PERFORMANCE. MULTIPATH REJECTION AND GAIN ARE SATISFACTORY AT LOW ELEVATION ANGLES. THE MICROSTRIP DESIGN AND PHASE SHIFTER DESIGN ARE DISCUSSED. CRITICAL RF COMPONENTS IN THE MICROSTRIP DESIGN ARE ALL ETCHED IN A SINGLE MANUFACTURING STEP. REAL-TIME MANUAL MEASUREMENTS DATA AND COMPUTER-ANALYZED DATA ARE CITED.

SUBJECT: AIRCRAFT COMMUNICATIONS AIRCRAFT ANTENNA

KEYWORDS: ATS-6; AIRCRAFT ANTENNA; SPACECRAFT COMMUNICATION; ANTENNA RADIATION PATTERNS; CIRCULAR POLARIZATION; PHASE SHIFT CIRCUITS

UNIVERSITY OF DAYTON ACCESS NUMBER: 604

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DATE OF DOCUMENT/TYPE: NOV 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-6 MARITIME SATELLITE EXPERIMENTS

AUTHOR: KAMINSKY, Y.

SATELLITE: ATS-5; ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO IMPROVE THE COMPETITIVE POSITION OF THE U.S. FLAG FLEET BY IMPROVING THE PERFORMANCE OF SHIPPING PROCESS AND LOGISTICS TO REDUCE COSTS.

ABSTRACT: SINCE 1969, THE MARITIME ADMINISTRATION (MARAD) OF THE U.S. DEPARTMENT OF COMMERCE HAS BEEN ENGAGED IN THE EVALUATION OF TECHNOLOGICAL ADVANCES IN SATELLITE COMMUNICATIONS AND ELECTRONIC DATA PROCESSING IN ORDER TO IMPROVE THE COMPETITIVE POSITION OF THE U.S. FLAG FLEET BY IMPROVING THE PERFORMANCE OF THE SHIPPING PROCESS AND ASSOCIATED LOGISTICS TOGETHER WITH A REDUCTION IN COSTS OF MANUAL OPERATIONS. THIS EFFORT IS BEING ACCOMPLISHED THROUGH A FOUR-PHASE STUDY AND TEST PROGRAM USING THE CAPABILITIES OF EXISTING SATELLITES. DURING THE TWELVE-MONTH PERIOD BETWEEN JUNE 1974 AND MAY 1975, MARAD HAS CONDUCTED THE THIRD PHASE OF THIS PROGRAM USING NASA'S ATS-6 AND ATS-5 SATELLITES. THE REPORT DESCRIBES BRIEFLY THE SYSTEM CONFIGURATION, SUMMARIZES THE TEST ACTIVITIES, AND PRESENTS THE PRELIMINARY TEST RESULTS FOR THE MARAD PHASE 3 PROGRAM.

SUBJECT: DATA TRANSMISSION MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-6; RADIO RELAY SYSTEM; NAVIGATION SATELLITE; MODEM; L BAND; SHIP ANTENNA

UNIVERSITY OF DAYTON ACCESS NUMBER: 605

DATE OF DOCUMENT/TYPE: SEP 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: PRECIPITATION ANALYSIS FOR BOMEX PERIOD 3

AUTHOR: HUDLOW, M. D.; SCHERER, M. D.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: RADAR, SATELLITE, AND RAIN-GAGE DATA ARE USED QUALITATIVELY AND QUANTITATIVELY TO DESCRIBE THE PRECIPITATION MORPHOLOGY FOR 10 DAYS

ABSTRACT: RADAR, SATELLITE, AND RAIN-GAGE DATA ARE USED QUALITATIVELY AND QUANTITATIVELY TO DESCRIBE THE PRECIPITATION MORPHOLOGY FOR 10 DAYS (JUNE 21-30, 1969) OF PERIOD 3 OF THE BARBADOS OCEANOGRAPHIC AND METEOROLOGICAL EXPERIMENT (BOMEX). TYPICAL SATELLITE AND RADAR PHOTOGRAPHS ARE PRESENTED TO ILLUSTRATE CLOUD PATTERNS AND PRECIPITATION ECHOES FOR BOTH 'UNDISTURBED' AND 'DISTURBED' WEATHER. UNDISTURBED CONDITIONS ARE SHOWN TO PREVAIL FOR 5 CONSECUTIVE DAYS AND MODERATELY DISTURBED CONDITIONS FOR 2 DAYS. PROCEDURES FOR CALIBRATING AND OPTIMIZING THE USE OF THE QUANTITATIVE RADAR DATA ARE DISCUSSED. SATELLITE CLOUD DATA ARE USED TO EXTRAPOLATE THE RAINFALL ESTIMATES TO AREAS NOT COVERED BY RADAR. THE QUANTITATIVE RAINFALL COMPUTATIONS GAVE AVERAGE RAINFALL RATES OVER THE BOMEX SQUARE (250,000 SQ KM) OF 0.35 MM/DAY AND 3.7 MM/DAY FOR THE 5-DAY UNDISTURBED AND 2-DAY DISTURBED PERIODS, RESPECTIVELY.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; RAINFALL; WEATHER FORECASTING; CLOUDS; CLOUD COVER; OCEANOGRAPHIC SURVEYS; RAIN GAGES

UNIVERSITY OF DAYTON ACCESS NUMBER: 606

DATE OF DOCUMENT/TYPE: SEP 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: MIDLATITUDE MEASUREMENTS OF L-BAND IONOSPHERIC SCINTILLATION WITH THE ATS-5 SPACECRAFT.

AUTHOR: BROWN 3RD, W. E.; HAROULES, G. G.; THOMPSON 3RD, W. I.

SPONSORING AGENCY: U.S. DEPARTMENT OF TRANSPORTATION, OFFICE OF THE SECRETARY, OFFICE OF THE ASSISTANT SECRETARY FOR SYSTEMS DEVELOPMENT AND TECHNOLOGY, OFFICE OF SYSTEMS ENGINEERING, WASHINGTON, D.C., 20590

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO SHOW RESULTS OF L-BAND SIGNAL LEVEL MEASUREMENTS TAKEN FROM THE ATS-5 OPERATING IN THE NARROW-BAND FREQUENCY TRANSLATION MODE.

ABSTRACT: THIS REPORT PRESENTS SOME RESULTS OF L-BAND SIGNAL LEVEL MEASUREMENTS TAKEN FROM THE ATS-5 SPACECRAFT OPERATING IN THE NARROW-BAND FREQUENCY TRANSLATION MODE. THE UPLINK SIGNAL WAS SENT FROM THE DOT/ISC/WESTFORD PROPAGATION FACILITY IN WESTFORD, MASSACHUSETTS, WHICH HAS GEOGRAPHIC COORDINATES OF LATITUDE: 42.60 DEGREES NORTH AND LONGITUDE: 71.50 DEGREES WEST AND IS THUS A MIDLATITUDE SITE. THE UPLINK SIGNAL WAS TRANSPONDED BY THE NASA ATS-5 SPACECRAFT AND RE-RADIATED BACK TO EARTH. THE SIGNAL WAS RECEIVED BY SEVERAL L-BAND RECEIVING SYSTEMS LOCATED AT THE WESTFORD FACILITY. THE DATA ARE PRESENTED WEEKLY, MONTHLY AND SEASONAL PLOTS OF THE ROOT-MEAN-SQUARE OF THE PROBABILITY DENSITY FUNCTION AND THE 90TH PERCENTILE LEVEL OF THE PROBABILITY DISTRIBUTION FUNCTION OF THE RECEIVED SIGNAL AMPLITUDE. SAMPLE ANALOG RECORDINGS OF THE SIGNAL ARE ALSO PRESENTED ALONG WITH THE CORRESPONDING COMPUTER CALCULATED STATISTICS. BRIEF EQUIPMENT DESCRIPTIONS ARE INCLUDED ALONG WITH A DESCRIPTION OF AN AUTOMATIC DATA COLLECTION PLATFORM WHICH WAS USED DURING SOME OF THE MEASUREMENTS.

SUBJECT: DATA TRANSMISSION

KEYWORDS: AMPLITUDE SCINTILLATION MEASUREMENTS; L-BAND (1550 MHZ); ATS-5; AEROSAT; IONOSPHERE

UNIVERSITY OF DAYTON ACCESS NUMBER: E07

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DATE OF DOCUMENT/TYPE: FEB 75 / TECHNICAL MEMORANDUM

TITLE OF DOCUMENT: COMMUNICATIONS EXPERIMENTERS' GUIDE

AUTHOR: HUCK, R. W.

SATELLITE: CTS

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO DESCRIBE THE TECHNICAL AND OPERATIONAL ASPECTS OF THE CTS SATELLITE, THE ASSOCIATED GROUND TERMINALS, AND THE COMMUNICATIONS CAPABILITIES OF THE COMBINED SYSTEMS.

ABSTRACT: THE TECHNICAL AND OPERATIONAL ASPECTS OF THE CTS SATELLITE, THE ASSOCIATED GROUND TERMINALS, AND THE COMMUNICATIONS CAPABILITIES OF THE COMBINED SYSTEM ARE DESCRIBED. THIS INFORMATION IS PROVIDED FOR USE IN THE DETAILED PLANNING OF INDIVIDUAL EXPERIMENTS AND TO SPECIFY SOME OF THE DIVISIONS OF RESPONSIBILITY BETWEEN THE GOVERNMENT AND THE EXPERIMENT.

SUBJECT: DATA TRANSMISSION NAVIGATION COMMUNICATIONS

KEYWORDS: CTS; EXPERIMENTERS' GUIDE; TELECOMMUNICATIONS; NAVIGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 608

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DATE OF DOCUMENT/TYPE: JAN 76 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-6 MILLIMETER WAVELENGTH PROPAGATION EXPERIMENT

AUTHOR: HODGE, D. B.; THEOBOLD, D. M.; TAYLOR, P. C.

SPONSORING AGENCY: THE OHIO STATE UNIVERSITY ELECTROSCIENCE LABORATORY, DEPARTMENT OF ELECTRICAL ENGINEERING, COLUMBUS, OHIO, 43212

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: INVESTIGATION OF ATMOSPHERIC PROPAGATION AT MMW FREQUENCIES. FEASIBILITY OF APPLICATIONS OF MMW COMMUNICATIONS SYSTEMS.

ABSTRACT: THE ATS-6 MILLIMETER WAVELENGTH PROPAGATION EXPERIMENT IS SUMMARIZED. ATTENUATION WAS MEASURED SIMULTANEOUSLY AT 20 AND 30 GHZ ON EARTH SPACE PROPAGATION PATHS TO TWO GROUND TERMINALS LOCATED AT COLUMBUS, OHIO. IN ADDITION, 20 AND 30 GHZ RADIOMETRIC TEMPERATURES WERE MEASURED ALONG THE SAME PROPAGATION PATHS; AND THE 20 GHZ RADIOMETRIC TEMPERATURE WAS ALSO MEASURED AT A THIRD GROUND TERMINAL. THE RESULTS OF THESE MEASUREMENTS ARE PRESENTED, AND DIVERSITY GAINS FOR THE FOUR PAIRS OF PROPAGATION PATHS ARE DISCUSSED. THE SCINTILLATION CHARACTERISTICS OF THE RECEIVED SIGNALS ARE ALSO PRESENTED.

SUBJECT: COMMUNICATIONS MILLIMETER WAVE

KEYWORDS: ATS-6; MILLIMETER WAVES; WAVE PROPAGATION; GROUND STATIONS; RADIOMETERS; SCINTILLATION; WAVE ATTENUATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 609

E-342

DATE OF DOCUMENT/TYPE: JANUARY 1973 / TECHNICAL REPORT

TITLE OF DOCUMENT: EVALUATION OF MARITIME SATELLITE COMMUNICATIONS FOR INLAND WATERWAYS

AUTHOR: ANDERSON, R. E.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO EVALUATE EXPERIMENTAL VOICE, TELETYPE AND FACSIMILE COMMUNICATIONS BETWEEN INLAND WATERWAYS VESSEL AND ITS HOME OFFICE.

ABSTRACT: THE REPORT DESCRIBES AN EVALUATION OF EXPERIMENTAL VOICE, TELETYPE AND FACSIMILE COMMUNICATIONS BETWEEN AN INLAND WATERWAYS TOWING VESSEL ON THE MISSISSIPPI RIVER AND ITS HOME OFFICE THROUGH NA SA'S ATS-3 SATELLITE USING VHF FREQUENCIES. THE EXPERIMENT CONCLUDED THAT SUCH COMMUNICATIONS ARE TECHNICALLY FEASIBLE BUT LACKED CONCLUSIVE DATA TO DEMONSTRATE ECONOMIC BENEFIT.

SUBJECT: MARITIME TRAFFIC CONTROL

KEYWORDS: ATS-3, WATERWAY TRANSPORTATION, INLAND WATERWAYS, CARGO TRANSPORTATION MANAGEMENT

UNIVERSITY OF DAYTON ACCESS NUMBER: 610

12-747

DATE OF DOCUMENT/TYPE: OCT 70 / PAPER

TITLE OF DOCUMENT: NAVIGATION AND COMMUNICATION EXPERIMENT AT L-BAND ON BOARD S. S. MANHATTAN USING ATS-5 SATELLITE

AUTHOR: HANAS, O. J.; MAETJEN, R. H.

SATELLITE: ATS-5

ABSTRACT: L-BAND SIGNALS RELAYED BY THE SYNCHRONOUS ATS-5 SATELLITE WERE SUCCESSFULLY USED FOR NAVIGATION AND DATA COMMUNICATIONS. TWO RECEIVING STATIONS WERE USED, ONE STATIONARY IN MOORESTOWN, NEW JERSEY, AND THE OTHER MARINE MOBILE ON THE ICEBREAKING TANKER S. S. MANHATTAN. IT EMPLOYED BI-PHASE PSK MODULATION OF THREE TONES FOR RANGING, WITH SUPERIMPOSED DATA INFORMATION. THE RECEIVER IS A "MODULATION-LOCK-LOOP" TYPE WHICH DOES NOT REQUIRE CARRIER LOCK. DIGITAL TRACKING TECHNIQUES ARE USED FOR SAMPLE-AND-HOLD FUNCTIONS ON THE RANGE MEASUREMENTS BECAUSE THE ATS-5 SATELLITE IS SPINNING. RESULTS ARE DESCRIBED IN TERMS OF CARRIER-TO-NOISE RATIOS, SYSTEM PRECISION, ACCURACY, MULTIPATH EFFECTS AND THE QUALITY OF DATA TRANSMISSION. TWO CONCLUSIONS ARE MADE: 1) THE ATS-5 IS FULLY USABLE FOR NAVIGATION AND DATA COMMUNICATION, AND 2) L-BAND IS WELL SUITED FOR PRECISE AND CONTINUOUS NAVCOM FUNCTIONS UNAFFECTED BY SEVERE ENVIRONMENTAL CONDITIONS.

SUBJECT: DATA TRANSMISSION NAVIGATION

KEYWORDS: ATS-5; NAVIGATION; RANGE FINDING; ULTRA HIGH FREQUENCIES; TELECOMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 611



DATE OF DOCUMENT/TYPE: 1977 / TECHNICAL REPORT

TITLE OF DOCUMENT: FEDERAL RESEARCH AND DEVELOPMENT FOR SATELLITE COMMUNICATIONS

AUTHOR: COMMITTEE ON SATELLITE COMMUNICATIONS

SATELLITE: ATS-1; ATS-3; ATS-5; ATS-6

OBJECT OF EXPERIMENT: SHOULD FEDERAL RESEARCH AND DEVELOPMENT ON SATELLITE COMMUNICATIONS BE THE PROPER FEDERAL ROLE IN THE FIELD?

ABSTRACT: DISCUSSES THE QUESTION AS TO WHETHER NASA AND/OR FEDERAL GOVERNMENT COMMUNICATIONS BUSINESS. SIX POSSIBLE OPTIONS FOR THE FEDERAL ROLE IN SATELLITE COMMUNICATIONS ARE OUTLINED AND DEFINED. AND FINALLY THE CONCLUSIONS AND RECOMMENDATIONS OF THE COMMITTEE.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS COMMUNICATIONS

KEYWORDS: ATS-1; ATS-3; ATS-5; ATS-6; TELECOMMUNICATIONS; NASA; PUBLIC SERVICE SATELLITE

UNIVERSITY OF DAYTON ACCESS NUMBER: 61

DATE OF DOCUMENT/TYPE: DEC 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-5 TRILATERATION SUPPORT

AUTHOR: BRISKEN, A. F.; ANDERSON, R. E.

SPONSORING AGENCY: NASA, GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: TO PROVIDE AN L-BAND TRILATERATION NETWORK CAPABLE OF LOCATING THE ATS-5 SATELLITE, DETERMINING THE SATELLITE'S ORBITAL ELEMENTS, AND PREDICTING SATELLITE POSITIONS FOR THE NEXT TWO HOURS

ABSTRACT: THE ATS-5 TRILATERATION SUPPORT PROGRAM HAS RESULTED IN THE DEVELOPMENT OF A UNIQUE NETWORK FOR ACCURATELY AND PRECISELY DETERMINING SATELLITE POSITIONS UTILIZING INEXPENSIVE, REMOTE, AUTOMATIC TRANSMITTERS. THE TECHNIQUES DEMONSTRATED DURING THESE EXPERIMENTS HAVE BROAD APPLICATIONS IN POSITION LOCATION OF SATELLITES, AERONAUTICAL OR MARITIME POSITION SURVEILLANCE, AND SEARCH AND RESCUE OPERATIONS.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION SEARCH AND RESCUE

KEYWORDS: ATS-5; GEODETIC COORDINATES; NAVIGATION SATELLITE; RANGE FINDERS; SIGNAL PROCESSING; SIGNAL RECEPTION; L BAND

UNIVERSITY OF DAYTON ACCESS NUMBER: 613

DATE OF DOCUMENT/TYPE: OCT 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 AND THE FUTURE

AUTHOR: VON BRAUN, W.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: EXPLAINS THE USE OF A COMMUNICATION SATELLITE, THE ATS-6, IN TELEMEDICINE AND INDIVIDUALIZED INSTRUCTION

ABSTRACT: EMPHASIZES THE BENEFICIAL APPLICATION OF TOOLS DEVELOPED AS A RESULT OF THE SPACE PROGRAM IN COMMUNICATIONS AND EDUCATION. EXPLAINS THE USE OF A COMMUNICATION SATELLITE, THE ATS-6, IN TELEMEDICINE AND INDIVIDUALIZED INSTRUCTION.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS  
VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; TELECOMMUNICATION; COMPUTER ASSISTED INSTRUCTION

JOURNAL TITLE: JOURNAL OF AEROSPACE EDUCATION, VOL. 2, PAGES 4-5

UNIVERSITY OF DAYTON ACCESS NUMBER: 614

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DATE OF DOCUMENT/TYPE: MAR 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: SATELLITE COMMUNICATIONS AT THE GODDARD SPACE FLIGHT CENTER

AUTHOR: CLARK, J. F.; REDISCH, W. N.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: EXPLAINS HOW GODDARD SPACE FLIGHT CENTER BECAME ONE OF THE PIONEERS IN SATELLITE COMMUNICATIONS

ABSTRACT: STARTING WITH THE 1960 DELTA LAUNCH OF THE FIRST ECHO SATELLITE, NASA'S GODDARD SPACE FLIGHT CENTER (GSFC) BECAME ONE OF THE PIONEERS IN SATELLITE COMMUNICATIONS. ATTENTION IS GIVEN TO THE PROJECT SYNCOM, THE APPLICATIONS TECHNOLOGY SATELLITE (ATS) PROGRAM, THE ATS-6 PROJECT, AND CURRENT GSFC EFFORTS. AFTER THE DECISION ANNOUNCED IN JANUARY OF 1973 THAT NASA WOULD PHASE OUT OF COMMUNICATIONS SATELLITE PROGRAMS, THE COMMUNICATIONS EFFORT AT GSFC CONCENTRATES ON THE OPERATION OF ATS SPACECRAFT IN ORBIT, EXPERIMENTS IN THE 12- TO 14 GHZ FREQUENCY BAND, AND ADVANCED COMMUNICATIONS RESEARCH.

SUBJECT: COMMUNICATIONS

KEYWORDS: ATS-6; COMMUNICATION SATELLITES; SYNCOM SATELLITES; DELTA LAUNCH VEHICLE; MICROWAVE TRANSMISSION; SPACECRAFT LAUNCHING

JOURNAL TITLE: SIGNAL, VOL. 30, PAGES 46-52

UNIVERSITY OF DAYTON ACCESS NUMBER: 615

E-346

DATE OF DOCUMENT/TYPE: NOV 75 / PAPER

TITLE OF DOCUMENT: MARITIME SATELLITE COMMUNICATIONS TERMINAL IMPLEMENTAL

AUTHOR: MCCLUFE, R. B.; MUSTED, J. M.; GIORGIO, F.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO IMPLEMENT TWO COMMUNICATIONS TERMINAL UNITS

ABSTRACT: TWO MARITIME SATELLITE COMMUNICATIONS TERMINAL UNITS ARE DESCRIBED. THE FIRST, AN EXPERIMENTAL TERMINAL BASEBAND/IF UNIT, WAS DESIGNED TO PROVIDE AN EARLY ASSESSMENT OF VARIOUS MODULATION AND ACCESSING TECHNIQUES INCORPORATED INTO THE MARISAT SYSTEM, AND HAS BEEN SUCCESSFULLY TESTED WITH THE ATS-6 SATELLITE. A TDM DIGITAL CHANNEL IS USED FOR TELEGRAPHY IN SHIP-TO-SHORE COMMUNICATION.

SINGLE-CHANNEL-PER-CARRIER FM MODEMS ARE PROVIDED FOR VOICE COMMUNICATIONS. AS AN ALTERNATIVE TO THE TDM/TDMA SUBSYSTEM, FSK MODEMS ARE INCLUDED. THE SECOND UNIT, THE MARISAT SHIPBOARD TERMINAL BASEBAND CONTROL SUBSYSTEM, USES TDM 2-PHASE PSK MODULATED CARRIERS AT A BIT RATE OF 1200 UPS AND 22 TELEGRAPH CHANNELS TRANSMITTED BY TDMA 2-PHASE PSK MODULATED BURST CARRIERS FOR SHIP-TO-SHORE COMMUNICATIONS. A MICROPROCESSOR WITH A 0.5 MICROSECOND CYCLE TIME PROVIDES REAL-TIME SERVICE FOR THE TWO HIGH-SPEED DATA CHANNELS, INCLUDING THE FRAME SYNCHRONIZATION AND MULTIPLEXING FUNCTIONS.

SUBJECT: DATA TRANSMISSION NAVIGATION VOICE COMMUNICATIONS

KEYWORDS: ATS-6; DATA TRANSMISSION; DIGITAL SYSTEMS; GROUND STATIONS; MODEMS; MICROPROCESSING; PHASE SHIFT KEYING; MARITIME SATELLITES

UNIVERSITY OF DAYTON ACCESS NUMBER: 616

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DATE OF DOCUMENT/TYPE: OCT 76 / JOURNAL ARTICLE

TITLE OF DOCUMENT: DISSEMINATION OF TIME AND FREQUENCY BY SATELLITE

AUTHOR: EASTON, R. L.; FISHER, L. C.; HANSON, D. W.; HELLMIG, H. W.; RUEGER, L. J.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: THREE DIFFERENT MODES OF SATELLITE TIME AND FREQUENCY TRANSFER ARE DESCRIBED

ABSTRACT: A DESCRIPTION IS GIVEN OF THE THREE DIFFERENT MODES OF SATELLITE TIME AND FREQUENCY TRANSFER. ONE METHOD USES GEOSTATIONARY SATELLITES TO DISTRIBUTE TIME SIGNALS OF THE U.S. NATIONAL BUREAU OF STANDARDS TO A LARGE NUMBER OF USERS. THIS METHOD COULD EVENTUALLY REPLACE SOME OF THE EXISTING RADIO TIME AND FREQUENCY BROADCASTS. A SECOND METHOD USES NAVIGATION SATELLITES CARRYING TIME STANDARDS. SUCH SATELLITES ARE IMPORTANT SOURCES OF ACCURATE TIME DISSEMINATION. THE THIRD METHOD EMPLOYS TWO-WAY REPEATERS ON COMMUNICATIONS SATELLITES. THIS METHOD HAS BEEN USED EXTENSIVELY BY THE U.S. NAVAL OBSERVATORY. ITS MAIN USE IS RESTRICTED TO LINKING DISTANT TIME STATIONS BECAUSE GROUND STATIONS ARE VERY EXPENSIVE AND IN FIXED LOCATIONS.

SUBJECT: BROADCASTING COMMUNICATIONS

KEYWORDS: BROADCASTING; FREQUENCY STANDARDS; TIME SIGNALS; ATS-3; FREQUENCY MEASUREMENT; GROUND STATIONS; REPEATERS; TIME MEASUREMENT; TIMING DEVICES

JOURNAL TITLE: PROCEEDINGS OF THE IEEE, VOL. 64, PAGES 1482-1493

UNIVERSITY OF DAYTON ACCESS NUMBER: 617

E-348

DATE OF DOCUMENT/TYPE: SEPT 76 / JOURNAL ARTICLE

FILE OF DOCUMENT: LOW-LATITUDE WHISTLERS AND CLOUD DISTRIBUTIONS IN THE CONJUGATE AREA

AUTHOR: YOSHINO, T.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO COMPARE LOW-LATITUDE WHISTLER WITH CLOUD DISTRIBUTION IN THE CONJUGATE HEMISPHERE OBSERVED BY WEATHER-WATCHING SATELLITES

ABSTRACT: LOW-LATITUDE WHISTLER OBSERVATIONS AT SUGADAIRA (GEOMAGNETIC LATITUDE 26 DEG N) ARE COMPARED WITH THE CLOUD DISTRIBUTION IN THE CONJUGATE HEMISPHERE OBSERVED BY WEATHER-WATCHING SATELLITES. THE OCCURRENCE FREQUENCY OF WHISTLERS IS FOUND TO BE HIGH WHEN THE CLOUD IS IN THE SOUTHWEST SECTOR OF THE CONJUGATE POINT AND LIES WITHIN A DISTANCE OF ABOUT 500 KM.

SUBJECT: METEOROLOGY

KEYWORDS: CLOUD COVER; COLD FRONTS; CONJUGATE POINTS; TROPICAL REGIONS; WHISTLERS; ATS-1

JOURNAL TITLE: JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 81, PAGES 4793-4796

UNIVERSITY OF DAYTON ACCESS NUMBER: 618

DATE OF DOCUMENT/TYPE: MAY 1976 / JOURNAL ARTICLE

TITLE OF DOCUMENT: EDUCATIONAL SATELLITES - A GOAL OR GAOL --- SOCIAL AND CULTURAL CONSEQUENCES

AUTHOR: GRAYSON, L. P.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: EDUCATIONAL SATELLITES ARE DISCUSSED REGARDING CULTURAL CHANGES, ORGANIZATION, FINANCING AND EQUIPMENT

ABSTRACT: SEVERAL ISSUES OF SIGNIFICANCE IN THE WIDESPREAD APPLICATION AND USE OF SATELLITES IN EDUCATION ARE DISCUSSED, INCLUDING THE IMPLICATIONS FOR EDUCATION AND CULTURAL CHANGE, THE ORGANIZATIONAL PROBLEMS IN OPERATING A MAJOR SATELLITE-BASED EDUCATIONAL SYSTEM, FINANCING THE ACTIVITIES, AND THE NEED TO AGGREGATE THE MARKET IN ORDER TO AMORTIZE LARGE INVESTMENTS FOR EQUIPMENT AND PRODUCTION WHILE MAINTAINING A DIVERSITY OF EDUCATIONAL OFFERINGS TO SATISFY LOCAL NEEDS. THE BASIC DIFFICULTY IN APPLYING SATELLITES TO EDUCATION IS HOW TO DEVELOP AND APPLY TECHNIQUES THAT CAN BE HIGHLY EFFECTIVE, BUT WHICH ARE ECONOMICAL ONLY WHEN APPLIED ON A MASS BASIS, TO INSURE THAT THERE IS ENOUGH FLEXIBILITY AND VARIETY SO THAT EDUCATION CAN BE RESPONSIVE TO LOCAL NEEDS AND DESIRES. THE TASK IS TO APPLY SATELLITES TO EDUCATION IN ORDER TO IMPROVE THE QUALITY OF EDUCATION, REDUCE ITS COST, INCREASE THE AVAILABILITY OF EDUCATIONAL OPPORTUNITY, AND CREATE POSSIBILITIES FOR ADDITIONAL CHOICE, YET DO SO WITHOUT CREATING NEW PROBLEMS THAT OUTWEIGH EXISTING ONES.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; SOCIAL FACTORS; TECHNOLOGY UTILIZATION; CULTURE (SOCIAL SCIENCES)

JOURNAL TITLE: IEEE TRANSACTIONS ON EDUCATION, VOL. E-19, PAGES 38-45

UNIVERSITY OF DAYTON ACCESS NUMBER: 619

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DATE OF DOCUMENT/TYPE: AFR 76 / PAPER

TITLE OF DOCUMENT: THE NATIONAL INSTITUTE OF EDUCATION'S EDUCATIONAL SATELLITE COMMUNICATIONS DEMONSTRATION: LESSONS LEARNED AND THEIR FEDERAL POLICY IMPLICATIONS

AUTHOR: PORTER, S.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION

SATELLITE: ATS-6

ABSTRACT: DURING 1975, THE EDUCATIONAL SATELLITE COMMUNICATIONS DEMONSTRATION (ESCD) USED ATS-6 FOR THREE DISTINCT DEMONSTRATIONS IN APPALACHIA, ALASKA, AND THE ROCKY MOUNTAIN AREA. THE MOST COMMON USE OF THE TECHNOLOGY WAS TO BROADCAST AN UNINTERRUPTED PROGRAM FOLLOWED BY A SHORT INTERACTION PERIOD. OTHER ADAPTIONS INCLUDED THE DEVELOPMENT OF A CENTRAL TAPE DISTRIBUTION CENTER, ACCUMULATION OF RECORDED PROGRAMS FOR REBROADCAST IN INDIVIDUAL SCHOOLS OR FOR WHOLE SCHOOL DISTRICTS, AND THE GENERATION OF PROGRAMS ON A LOCAL BASIS. EDUCATIONAL PROGRAMS PROVED SUCCESSFUL WITH ADULT STUDENTS, BUT THE PROJECT RECEIVED MIXED REVIEWS FROM YOUNGER STUDENTS AND FROM TEACHERS.

SUBJECT: EDUCATIONAL APPLICATIONS BACKGROUND

KEYWORDS: ATS-6; APPLICATION; APPALACHIA; ROCKY MOUNTAIN; EDUCATION; NETWORK; LIBRARIES

UNIVERSITY OF DAYTON ACCESS NUMBER: 620

DATE OF DOCUMENT/TYPE: 1975

/ TECHNICAL REPORT

TITLE OF DOCUMENT: THE USE OF A SATELLITE HUMAN INTERACTION SYSTEM IN CONJUNCTION WITH A SATELLITE MEDIA DISTRIBUTION SYSTEM

AUTHOR: DALE, J. S.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D.C.

SATELLITE: ATS-3; ATS-6

ABSTRACT:

SATELLITE TECHNOLOGY DEMONSTRATION (STD) WAS DESIGNED TO PROVIDE DATA ON THE USE OF A SATELLITE TO DELIVER EDUCATIONAL PROGRAMS TO 56 RURAL-ISOLATED SCHOOLS IN EIGHT ROCKY MOUNTAIN STATES. THREE SERIES WERE BROADCAST: (1) A JUNIOR HIGH SCHOOL CAREER DEVELOPMENT, (2) CAREER DEVELOPMENT FOR PUBLIC SCHOOL ADMINISTRATORS AND TEACHERS, AND (3) TOPICAL PROGRAMS FOR COMMUNITY MEMBERS. THE STD ALSO USED THE ADVANCED TECHNOLOGY SATELLITE (ATS-3) AS AN INTERACTIVE VOICE-LINK WITH 24 PARTICIPATING SCHOOLS AND RECORDED THIS DATA. SCHOOLS WERE DEFINED AS "INTERACTIVE" AND "NONINTERACTIVE." ACROSS ALL MEASURES, THE INTERACTIVE STUDENTS SHOWED A GREATER NUMBER OF LEARNING GAINS AND LARGER GAINS ON THOSE TESTS WHICH REFLECTED THE COGNITIVE ASPECTS OF THE STD PROGRAMING. THE RESULTS OF THIS RESEARCH SUGGESTED THAT A SATELLITE AUDIO INTERACTION SYSTEM WOULD ENHANCE THE QUALITY OF EDUCATIONAL PROGRAMING VIA SATELLITE. STATISTICAL TABLES SHOW THE RESULTS OF MEASUREMENTS.

SUBJECT: BACKGROUND

KEYWORDS: ATS-6; ATS-3; TELECOMMUNICATION; ROCKY MOUNTAIN; SATELLITE; EDUCATION; TECHNOLOGY

TECHNICAL REPORT NUMBER: TR0217

UNIVERSITY OF DAYTON ACCESS NUMBER: 621

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DATE OF DOCUMENT/TYPE: APR 75

/ PROGRESS REPORT  
PAPER

TITLE OF DOCUMENT: EDUCATION ON THE BEAM: A PROGRESS REPORT ON THE APPALACHIAN EDUCATION SATELLITE PROJECT

AUTHOR: BRAPPLE, W. J.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D.C.

SATELLITE: ATS-6

ABSTRACT:

THE APPALACHIAN REGIONAL COMMISSION (ARC) SAW THE SIXTH APPLIED TECHNOLOGY SATELLITE (ATS-6) AS A MEANS OF IMPROVING THE QUALITY OF INSERVICE TEACHER EDUCATION BY DISTRIBUTING HIGH QUALITY COURSES FROM A CENTRAL SOURCE. THERE WERE 15 CLASSROOM SITES SCATTERED FROM NEW YORK TO ALABAMA; THE BASIC TELEVISION RECEPTION EQUIPMENT COST APPROXIMATELY \$4,000 PER SITE. FIVE OF THE 15 SITES WERE ALSO EQUIPPED TO RECEIVE AND TRANSMIT 2-WAY RADIO VIA ATS-3. THERE WERE 4 MAJOR LEARNING ACTIVITIES: (1) 30-MINUTE, PRETAPED TELEVIEWED PROGRAMS WHICH INCLUDED LECTURES, INTERVIEWS, AND DEMONSTRATION TEACHING; (2) AUDIO REVIEWS OF THE PRETAPED TELEVISION PROGRAMS; (3) LIVE SEMINARS WHICH ALLOWED STUDENTS TO ASK QUESTIONS OF THEIR TEACHERS AND OTHER EXPERTS; AND (4) RESOURCE LIBRARIES AT EACH SITE. THERE IS A ONE-PAGE SUMMARY OF EACH OF THE FOLLOWING: EVALUATION STRATEGIES; HOW WELL DID THE EQUIPMENT WORK; HOW WELL DID THE SYSTEM FOR RELAYING SEMINAR QUESTIONS WORK; WHAT WERE THE PARTICIPANTS LIKE; HOW WELL DID THE PARTICIPANTS LIKE THE DIFFERENT LEARNING ACTIVITIES; HOW MUCH DID THE PARTICIPANTS LEARN; DID THE PARTICIPANTS BECOME CONVINCED OF THE VALUES OF COURSE CONCEPTS AND PROCEDURES; ARE THE TEACHERS USING THE SKILLS LEARNED; AND CONCLUSIONS.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: AST-6; SATELLITE; COMMUNICATION; APPALACHIA; TELECOMMUNICATION; EDUCATION; VIDEO

UNIVERSITY OF DAYTON ACCESS NUMBER: 622

DATE OF DOCUMENT/TYPE: SEP 75 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ALASKA ATS-6 HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT  
AUTHOR: UNKNOWN  
SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (IDHEW), WASHINGTON, D.C.  
SATELLITE: ATS-6  
OBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF TELECOMMUNICATIONS FOR TRANSMITTING EDUCATIONAL MATERIALS IN ALASKA

ABSTRACT: COMMUNICATIONS SATELLITE TECHNOLOGY HAS FOR THE FIRST TIME GIVEN ALASKA THE CAPACITY TO DELIVER TELEVISION BROADCASTS TO THE STATE'S ISOLATED REGIONS. THE ATS-6 HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT HAS GIVEN THE STATE AN OPPORTUNITY TO: (1) ACQUIRE EXPERIENCE WITH NEW FORMS OF TECHNOLOGY; (2) INVOLVE THE STATE'S CULTURALLY DIVERSE MINORITIES IN THE SELECTION OF PROGRAMING; AND (3) PROVIDE EDUCATORS WITH EXPERIENCE IN DEVELOPING MATERIALS FOR USE IN RURAL COMMUNITIES. ALTHOUGH GROUND TERMINALS HAVE BEEN INSTALLED, AND NEARLY 100 HOURS OF ORIGINAL PROGRAMS WERE CREATED AND BROADCAST. BECAUSE OF THE POTENTIALLY DRAMATIC IMPACT THE BROADCASTS COULD HAVE ON VILLAGE LIFE, CARE HAS BEEN TAKEN TO INVOLVE COMMUNITY COUNCILS IN ALL STAGES OF DECISION MAKING. A FULL EXTERNAL EVALUATION OF THE PROGRAM WILL BE FORTHCOMING.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; ALASKA; EDUCATION; HEALTH; TELECOMMUNICATIONS; COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 623

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DATE OF DOCUMENT/TYPE: SEP 75 / EXECUTIVE SUMMARY

TITLE OF DOCUMENT: ALASKA ATS-6 HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF TELECOMMUNICATIONS FOR TRANSMITTING EDUCATIONAL MATERIALS IN ALASKA

ABSTRACT:

ALASKA IS A STATE OF GEOGRAPHIC AND CULTURAL EXTREMES. IN ORDER TO IMPROVE THE STANDARD OF HEALTH AND TO PROVIDE BROADER EDUCATIONAL OPPORTUNITY, ESPECIALLY IN RURAL COMMUNITIES, THE ATS-6 COMMUNICATIONS SATELLITE HAS BEEN USED TO COMPENSATE FOR REMOTENESS AND TRANSPORTATION DIFFICULTIES. THE HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT HAS GIVEN ALASKA ITS FIRST EXPERIENCE WITH A PROTOTYPE OPERATIONAL SATELLITE COMMUNICATIONS SYSTEM FOR THE TRANSMISSION OF TELEVISION AND MULTIPLE VOICE CHANNELS TO LOW-COST EARTH TERMINALS. VOLUME 1 OF THE THREE VOLUME FINAL REPORT PROVIDES TECHNICAL INFORMATION REGARDING HARDWARE, SITE SELECTION, INSTRUCTIONAL PROGRAMING, AND COMMUNITY INVOLVEMENT IN DECISION MAKING.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; ALASKA; EDUCATION; HEALTH; TELECOMMUNICATIONS; COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 624

DATE OF DOCUMENT/TYPE: AFR 75 / PAPER

TITLE OF DOCUMENT: USING ATS-6 FOR CONTINUING MEDICAL EDUCATION AND HEALTH CARE IN APPALACHIA

AUTHOR: BUTLER-PAISLEY, M.

SPONSORING AGENCY: VETERANS ADMINISTRATION, WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF TELECOMMUNICATIONS FOR HEALTH APPLICATIONS TO HOSPITAL STAFF MEMBERS IN APPALACHIA

ABSTRACT: TEN VETERANS ADMINISTRATION HOSPITALS IN APPALACHIA PARTICIPATED IN FIVE BIOMEDICAL COMMUNICATION EXPERIMENTS USING THE ADVANCED TECHNOLOGY SATELLITE (ATS-6). MATERIAL WAS COLLECTED AND EVALUATED BY BOTH QUESTIONNAIRES AND INTERVIEWS WITH THE MEDICAL STAFF OF THE 10 HOSPITALS. THE FIVE EXPERIMENTS WERE CONDUCTED IN THE AREAS OF: (1) VIDEO SEMINARS, (2) GRAND ROUNDS, (3) TELECONSULTATION, (4) OUT-PATIENT CLINICS, (5) COMPUTER-ASSISTED INSTRUCTION. THE PROGRAMS STUDIED AND THE HOSPITALS PARTICIPATING IN THE SATELLITE EXPERIMENT ARE APPENDED. A 7-ITEM BIBLIOGRAPHY IS INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; HEALTH; EDUCATION; APPALACHIA; VETERANS ADMINISTRATION; TELECOMMUNICATION; TELEMEDICINE; COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 625

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DATE OF DOCUMENT/TITLE: APR 76

/ PAPER

LE OF DOCUMENT: SOME POLICY ISSUES EMERGING FROM THE EDUCATIONAL SATELLITE COMMUNICATIONS DEMONSTRATION IN ALASKA

AUTHOR: FEINER, ALBERT

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (OMEI), WASHINGTON, D.C.

SATELLITE: ATS-6

ABSTRACT:

THE ATS-6 EDUCATIONAL SATELLITE COMMUNICATIONS DEMONSTRATION-ALASKA (ESCOM), WAS VIEWED AS A WAY TO GIVE ISOLATED POPULATION GROUPS GREATER VOICE IN THEIR EDUCATIONAL FUTURE, BY BYPASSING BUREAUCRATIC LEVELS AND ALLOWING THE LOCAL PEOPLE TO HAVE A DIRECT SAY IN THE SCHOOL CURRICULUM AND PROGRAMS THAT WERE SHOWN VIA SATELLITE. THIS STUDY FOCUSED ON THE PROGRAMS ON THE ATS-6 SATELLITE AND EVALUATED THE EFFECTIVENESS OF THE PROGRAMS IN TERMS OF THE OBJECTIVES STATED FOR THE PROJECT. IN ADDITION, RECOMMENDATIONS WERE MADE: (1) ON THE IMPACT ON ORGANIZATIONS; (2) TO THE EDUCATIONAL COMMUNITY; AND (3) TO SOCIAL SERVICES EXPERIMENT AND DEMONSTRATION MANAGERS. THE ISSUE OF LOCAL CONTROL FOR EACH VILLAGE OR REGION WAS EXPLORED ALONG WITH INTERNATIONAL POLICY IMPLICATIONS. IT WAS FOUND THAT THE EDUCATIONAL OBJECTIVES OF BOTH THE FEDERAL AND STATE AGENCIES WERE CONTINUALLY IN CONFLICT WITH THE PRACTICAL OBJECTIVES OF ESTABLISHING A BASIS FOR COMMUNICATIONS NETWORK FOR ALASKA.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS BACKGROUND

KEYWORDS: ATS-6; SATELLITE; EDUCATION; HEALTH; TELECOMMUNICATIONS; ALASKA; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 626

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DATE OF DOCUMENT/TYPE: SLP 75 / EXECUTIVE REPORT  
TITLE OF DOCUMENT: SATELLITE TECHNOLOGY DEMONSTRATION  
AUTHOR: UNKNOWN  
SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D.C.  
SATELLITE: ATS-6  
OBJECT OF EXPERIMENT: TO DEMONSTRATE TELECOMMUNICATION TECHNIQUES IN THE ROCKY MOUNTAIN AREA

ABSTRACT: THE FEDERATION OF ROCKY MOUNTAIN STATES AND THE SATELLITE TECHNOLOGY DEMONSTRATION PROJECT (ST  
D) HAVE COLLABORATED IN AN EFFORT TO PROVIDE LOW COST INFORMATION DELIVERY TO RURAL AREAS OF THE RO  
LKIES. THOUGH THE GOALS AND THE FINANCIAL SUPPORT OF THIS JOINT EFFORT WERE INITIALLY CONFUSED, SI  
TES HAVE NOW BEEN SELECTED, THE COMMUNICATIONS TECHNOLOGY HAS BEEN REFINED, AND SERVICES HAVE BEEN  
STABILIZED. NEW SATELLITE TECHNOLOGY HAS MADE QUALITY RECEPTION POSSIBLE WITH LOW-COST GROUND RECE  
IVEFS, AND THE TECHNICAL PERFORMANCE OF THE SYSTEM IN ITS INITIAL YEARS HAS BEEN GOOD. "TIME OUT"--  
-A CAREER EDUCATION PROGRAM FOR JUNIOR HIGH SCHOOL STUDENTS--AND "FOOTPRINT"--A SERIES OF COMMUNITY  
-ORIENTED PROGRAMS--HAVE ENJOYED HIGH AUDIENCE RESPONSE, AND SUBSTANTIAL GAINS IN STUDENT KNOWLEDGE  
HAVE BEEN RECORDED. PROGRAMS ARE ENHANCED BY SUPPLEMENTARY PUBLICATIONS AND AUDIOVISUAL AIDS, AND  
THE SYSTEM PROVIDES AN INTERACTIVE MODE WHEREBY STUDENTS CAN ASK QUESTIONS AND MAKE COMMENTS ABOUT  
THE PROGRAMS. A BRIEF REVIEW OF THE PROGRAM'S FINANCIAL SUPPORT IS INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
KEYWORDS: ATS-6; SATELLITE; HEALTH; EDUCATION; TELECOMMUNICATION; ROCKY MOUNTAIN; COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 627

DATE OF DOCUMENT/TYPE: 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE VOICE/DATA COMMUNICATIONS SYSTEM IN THE HEALTH, EDUCATION, TELECOMMUNICATIONS EXPERIMENTS

AUTHOR: JANKY, J. H.; LAURENCE, D. R.; RITCHEY, L. W.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D.C.

SATELLITE: ATS-1; ATS-3; ATS-6

ABSTRACT: THE USE OF TWO-WAY VOICE LINKS VIA SATELLITES SUBSTANTIALLY IMPROVES THE QUALITY AND THE AVAILABILITY OF HEALTH CARE AND EDUCATIONAL SERVICES IN REMOTE AREAS. THIS IMPROVEMENT WAS DEMONSTRATED IN SEVERAL EXPERIMENTS THAT WERE SPONSORED BY THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE AND THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. FROM 1972 TO 1975, THESE EXPERIMENTS USED THE ATS-1, ATS-3, ATS-6 TO EXAMINE THE BENEFITS OF SEVERAL DIFFERENT SERVICE-DELIVERY CONFIGURATIONS, IN WHICH ONE-WAY VIDEO, TWO-WAY AUDIO/DATA, AND TWO-WAY LINKS TO 23 STATES WERE INVOLVED. THIS REPORT DESCRIBES THE PROCEDURES FOLLOWED IN COMMUNICATING THROUGH THE VARIOUS SATELLITES.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; ATS-3; ATS-6; SATELLITE; COMMUNICATION; TERMINALS; INTENSIVE; BROADCASTING; HARDWARE; ROCKY MOUNTAIN

UNIVERSITY OF DAYTON ACCESS NUMBER: 628

DATE OF DOCUMENT/TYPE: 1975 / JOURNAL ARTICLE

TITLE OF DOCUMENT: EDUCATION VIA SATELLITE: HOW IT WAS DONE BY THE FEDERATION OF ROCKY MOUNTAIN STATES

AUTHOR: LAUFENCE, D. R.; JANKY, J. M.

SATELLITE: ATS-1; ATS-3; ATS-6

ABSTRACT: THIS ARTICLE DESCRIBES THE GROUND EQUIPMENT USED BY THE FEDERATION OF ROCKY MOUNTAIN STATES IN TRANSMITTING EDUCATIONAL PROGRAMS VIA SATELLITE. THE VARIOUS TYPES OF TERMINALS ARE DESCRIBED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-1; ATS-3; ATS-6; SATELLITE; COMMUNICATION; TERMINALS; HARDWARE; INTENSIVE; BROADCASTING; ROCKY MOUNTAIN

JOURNAL TITLE: UNKNOWN

UNIVERSITY OF DAYTON ACCESS NUMBER: 629

DATE OF DOCUMENT/TYPE: JULY 74 / RESEARCH PAPER

TITLE OF DOCUMENT: ANALYSIS OF ANVIL GROWTH FROM ATS PICTURES

AUTHOR: CHANG, Y.

SATELLITE: ATS-3

ABSTRACT: THE GROWTH OF TWO FAST-SPREADING ANVIL CLOUDS IS STUDIED FROM A SEQUENCE OF ATS-3 PICTURES ON JULY 26, 1963. THE ANVIL BOUNDARIES AND CLOUD ELEMENTS ON THE ANVIL EDGES ARE TRACED. ANVIL BOUNDARIES ARE DRAWN AT ONE-HOUR INTERVALS AND THE CLOUD MOTION FIELDS ARE THUS CALCULATED. THE RESULTS ARE RELATED TO A MOVING TROPICAL DEPRESSION WITH A WARM CORE ANTICYCLONE ALOFT. IT IS SUGGESTED THAT THE TRACKING OF ANVIL BOUNDARIES FROM SATELLITE PICTURES IS USEFUL IN OBTAINING A RELIABLE AND ACCURATE UPPER-DIVERGENCE FIELD OVER DISTURBANCES IN THE TROPICS, AND, THUS, MAKES IT POSSIBLE TO OBTAIN A BETTER COMPREHENSION OF THE MECHANISM IN TROPICAL CIRCULATIONS.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; SATELLITE; CLOUDS; STORMS; WEATHER; METEOROLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 630

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DATE OF DOCUMENT/TYPE: APR 77 / PAPER

TITLE OF DOCUMENT: CONTINENTAL LAND MOBILE COMMUNICATIONS AND AUTOMATIC POSITION FIXING VIA SATELLITE

AUTHOR: BRISKEN, A. F.; FREY, R. L.

SATELLITE: ATS-1; ATS-3

SUBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF GEOSTATIONARY SATELLITES FOR POSITION FIXING

ABSTRACT:

IN A RECENT SERIES OF EXPERIMENTS, THE GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT CENTER DEMONSTRATED EFFECTIVE CONTINENTAL LAND MOBILE COMMUNICATIONS AND AUTOMATIC REAL-TIME VEHICLE POSITION FIXING TO THE DRUG ENFORCEMENT ADMINISTRATION AND THE IMMIGRATION AND NATURALIZATION SERVICE OF THE U.S. DEPARTMENT OF JUSTICE.

A STATION WAGON WAS EQUIPPED WITH A SPECIALLY DESIGNED ANTENNA, A SLIGHTLY MODIFIED COMMERCIAL VHF TRANSCEIVER, AND A DIGITAL TONE-CODE COMMUNICATIONS BANDWIDTH RANGING RESPONDER. THE GENERAL ELECTRIC RADIO-OPTICAL OBSERVATORY NEAR SCHENECTADY, NEW YORK REPRESENTED THE MAJOR EARTH TERMINAL; A COMMERCIAL VHF BASE STATION WITH A SATELLITE ANTENNA DEPLOYED FIRST IN THE DEA BUILDING IN WASHINGTON, D.C. AND LATER IN A BORDER PATROL OFFICE IN TUCSON, ARIZONA REPRESENTED THE HEADQUARTERS OR SECTOR OFFICE GROUND STATION. COMMUNICATIONS WERE RELAYED BY NASA'S AIS-3 GEOSTATIONARY SATELLITE. BOTH ATS-1 AND ATS-3 WERE USED FOR POSITION FIXING THE VEHICLE.

VOICE, SLOW SCAN TELEVISION, AUDIO TEST TONES, INTRUSION SENSOR DATA AND TELEPHONE PATCHES WERE RELAYED BY THE SATELLITE TO AND FROM THE VEHICLE UNDER A VARIETY OF CONDITIONS IN GREATER WASHINGTON, D.C. AND THE SOUTHWESTERN UNITED STATES. THE EXPERIMENT DEMONSTRATED CONTINENTAL COMMUNICATIONS OF A QUALITY EQUIVALENT TO OR BETTER THAN PRESENT LINE-OF-SIGHT VHF CAPABILITIES.

SUBJECT: LAW ENFORCEMENT/CRIMINAL JUSTICE APPLICATIONS      NAVIGATION  
VOICE COMMUNICATIONS      POSITION FIXING

KEYWORDS: ATS-1; ATS-3; SATELLITE; POSITION FIXING; RANGING; COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 631

DATE OF DOCUMENT/TYPE: JAN 74 / JOURNAL ARTICLE  
TITLE OF DOCUMENT: COMMUNICATIONS AND POSITION FIXING EXPERIMENTS USING THE ATS SATELLITES  
AUTHOR: ANDERSON, R. E.  
SATELLITE: ATS-1; ATS-3; ATS-5

## ABSTRACT:

NASA'S ATS-5, ATS-3 AND ATS-1 SATELLITES WERE USED IN A SERIES OF RANGING, POSITION FIXING AND COMMUNICATIONS EXPERIMENTS AT L-BAND AND VHF. COMMUNICATIONS INCLUDED VOICE, DIGITAL, TELETYPE AND FACSIMILE TRANSMISSIONS. MANY TRANSPONDERS WERE USED IN THE TESTS. THEY PROVIDED COMMUNICATIONS AND RESPONDED AUTOMATICALLY TO RANGING INTERROGATIONS.

THE CENTRAL GROUND TERMINAL DETERMINED THE RANGES FROM THE TWO SATELLITES TO THE TRANSPONDER AND COMPUTED ITS POSITION FIX. THREE TO TEN INDEPENDENT POSITION FIXES COULD BE MADE EACH SECOND IN ONE CHANNEL OF AN OPERATIONAL SYSTEM.

THE DICAP DIGITAL COMMUNICATIONS AND RANGING TECHNIQUE THAT HAS DEVELOPED FROM THESE EXPERIMENTS USES A SINGLE SIGNALLING WAVEFORM AND A SINGLE MODEM FOR COMMUNICATIONS AND RANGING. EXPERIMENTS WITH THE SIGNALLING PARAMETERS SUGGESTED FOR AN OPERATIONAL SYSTEM ACHIEVED A RANGING PRECISION BETTER THAN 50 FEET WITH A MODULATION FREQUENCY LESS THAN 10 KHZ, AN RF BANDWIDTH LESS THAN 60 KHZ, AND A RANGING SIGNAL DURATION OF 30 MILLISECONDS. AN AUTOMATIC TRANSPONDER THAT RESPONDS AT L-BAND THROUGH ATS-5 AND AT VHF THROUGH ATS-3 WAS LOCATED WITH A PRECISION APPROACHING 0.1 NM, 1 SIGMA.

EVERY FACTOR THAT AFFECTS COMMUNICATIONS RELIABILITY AND POSITION FIXING ACCURACY WAS MEASURED AND EVALUATED IN THE EXPERIMENTAL PROGRAM BETWEEN 1969 AND 1973.

HUNDREDS OF HOURS OF COMMUNICATIONS AND MORE THAN A MILLION RANGE MEASUREMENTS HAVE PROVIDED DATA ON ALL FACTORS THAT AFFECT COMMUNICATIONS RELIABILITY AND POSITION FIX ACCURACY. THE EXPERIMENTS HAVE CONFIRMED THAT ALL THE FACTORS CAN BE CONTROLLED AND THAT HIGH QUALITY, RELIABLE COMMUNICATIONS AND USEFUL POSITION FIXING ACCURACY CAN BE PROVIDED TO MARITIME AND AERONAUTICAL USERS BY PRACTICAL MEANS USING SATELLITES AT L-BAND.

SUBJECT: MARITIME TRAFFIC CONTROL                      NAVIGATION                      POSITION FIXING  
KEYWORDS: ATS-1; ATS-3; ATS-5; SATELLITE; L-BAND; VHF; RANGING; POSITION FIXING; COMMUNICATION  
JOURNAL TITLE: NAVIGATION: THE JOURNAL OF THE INSTITUTE OF NAVIGATION, VOL. 20, ISSUE 4, PAGES 329-345

UNIVERSITY OF DAYTON ACCESS NUMBER: 632

DATE OF DOCUMENT/TYPE: 1971

/ PAPER

TITLE OF DOCUMENT: RESULTS OF AN EXPERIMENT TO LOCATE AND READ DATA FROM UNMANNED TRANSPONDERS USING SATELLITES

THOR: ANDERSON, R. E.

SATELLITE: ATS-1; ATS-3

ABSTRACT:

THE VHF TRANSPONDERS OF NASA'S ATS-1 AND ATS-3 SATELLITES HAVE BEEN USED TO LOCATE AND COMMUNICATE WITH SHIPS AND AIRCRAFT AND TO LOCATE AND READ SENSOR DATA FROM A BUOY MOORED AT SEA. THE REMOTE PLATFORMS HAVE INCLUDED A BUOY MOORED IN DEEP WATER NEAR BERMUDA, COAST GUARD CUTTERS IN THE GULF OF MEXICO AND PACIFIC OCEAN, AIRCRAFT IN FLIGHT OVER THE CONTINENTAL UNITED STATES AND THE NORTH ATLANTIC, AND A NETWORK OF GROUND-BASED TRANSPONDERS AT IRELAND, GREENLAND, ICELAND, NEWFOUNDLAND, THE STATE OF WASHINGTON, AND ARGENTINA.

POSITION FIX ACCURACIES WERE APPROXIMATELY 1 NMI., 1 SIGMA, USING ORDINARY VHF BAND MOBILE COMMUNICATIONS EQUIPMENT WITH SIMPLE, INEXPENSIVE TONE-CODE RESPONDERS CONNECTED BETWEEN THE RECEIVERS AND TRANSMITTERS. MUCH BETTER ACCURACY WOULD BE OBTAINED USING WIDER BANDWIDTH AT HIGHER RADIO FREQUENCIES.

THE TESTS CONFIRMED THAT A NETWORK OF REMOTE, UNMANNED PLATFORMS CAN BE INTERROGATED AT ANY TIME, IN ANY SEQUENCE WITH THE LOCATION OF EACH PLATFORM AND ITS SENSOR DATA IMMEDIATELY AVAILABLE AT THE GROUND STATION.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-1; ATS-3; SATELLITE; RANGING; POSITION FIXING; COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 633

DATE OF DOCUMENT/TYPE: NOV. 1975 / TECHNICAL REPORT  
TITLE OF DOCUMENT: DATA COLLECTION OPERATIONAL SUPPORT SYSTEM  
AUTHOR: HOUGHTER, W. R.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE APPLICABILITY OF SATELLITES IN BROADCASTING HEALTH AND EDUCATION PROGRAMS

ABSTRACT: THE DATA COLLECTION OPERATIONAL SUPPORT SYSTEM HAS BEEN SHOWN TO BE A USEABLE MEANS OF TRANSMITTING NUMERICAL DATA OVER A 2-WAY VHF SATELLITE LINK. IT IS ALSO CAPABLE OF SUPPORTING EDUCATIONAL APPLICATIONS. THIS REPORT DETAILS THE DESIGN, OPERATION, USE, RESULTS, AND RECOMMENDATIONS OF THE SYSTEM.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS

KEYWORDS: ATS-6; SATELLITE; ROCKY MOUNTAIN; COMMUNICATION; TELECOMMUNICATION; VHF

UNIVERSITY OF DAYTON ACCESS NUMBER: 634

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DATE OF DOCUMENT/TYPE: 1975 / NEWSPAPER ARTICLE  
TITLE OF DOCUMENT: NASA FACTS  
AUTHOR: UNKNOWN

SATELLITE: ATS-6

ABSTRACT: THIS PUBLIC RELATIONS DOCUMENT DESCRIBES ATS-6 AND SUMMARIZES ITS ROLE. A BRIEF DESCRIPTION OF SOME OF THE MAJOR EXPERIMENTS USING ATS-6 IS INCLUDED. ALSO CONTAINS SEVERAL PICTURES OF ATS-6.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MARITIME TRAFFIC CONTROL  
MEDICAL/HEALTH APPLICATIONS METEOROLOGY NAVIGATION  
VOICE COMMUNICATIONS BACKGROUND

KEYWORDS: ATS-6; SATELLITE; EDUCATION; HEALTH; INDIA; SITE; PLACE; MEDICINE; COMMUNICATIONS; WEATHER.

UNIVERSITY OF DAYTON ACCESS NO. : 635

DATE OF DOCUMENT/TYPE: MAY 72 / PROPOSAL

TITLE OF DOCUMENT: POSITION LOCATION AND AIRCRAFT COMMUNICATIONS EQUIPMENT (PLACE)

AUTHOR: ALLEN, W. K.; TAYLOR, R. E.; FEINBERG, E. J.

SATELLITE: ATS-5; ATS-6

OBJECT OF EXPERIMENT: TO TEST A NUMBER OF COMMUNICATIONS AND POSITION-LOCATION TECHNIQUES USING ATS-5 AND 6 AS A RELAY BETWEEN GROUND TERMINALS AND SHIPS AND PLANES.

ABSTRACT: THE PROPOSAL DESCRIBES THE PERFORMANCE OF THREE SPECIFIC SETS OF EXPERIMENTS: (1) GROUND-BASED ENGINEERING EXPERIMENTS, (2) GROUND-BASED SIMULATION EXPERIMENTS, (3) IN-FLIGHT PERFORMANCE EXPERIMENT. SOME SPECIAL EXPERIMENTS ARE ALSO PROPOSED.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-5; ATS-6; SATELLITE; COMMUNICATION; POSITION FIXING; PLACE; AIRCRAFT; LOCATION; SURVEILLANCE

UNIVERSITY OF DAYTON ACCESS NUMBER: 636

DATE OF DOCUMENT/TYPE: 1969 / TECHNICAL REPORT

TITLE OF DOCUMENT: MARITIME MOBILE SATELLITE COMMUNICATIONS TESTS PERFORMED ON S. S. SANTA LUCIA

AUTHOR: WESTINGHOUSE ELECTRIC CORP.

SATELLITE: ATS-1, ATS-3

OBJECT OF EXPERIMENT: THE DEMONSTRATE SHORE-SHIP VHF COMMUNICATIONS THROUGH SATELLITE.

ABSTRACT: THE VHF SATELLITE COMMUNICATION TEST PROJECT, UNDERTAKEN BY THE OFFICE OF RESEARCH AND DEVELOPMENT OF THE MARITIME ADMINISTRATION, RESULTED IN TWO TEST VOYAGES OF THE S.S. SANTA LUCIA BOTH COMMENCING FROM FORT MONMOUTH, N.J. BOTH THE ATS-1 AND ATS-3 SYNCHRONOUS, EQUATORIAL SATELLITES WERE EMPLOYED IN THE TESTS. THIS REPORT DESCRIBES THE SYSTEMS EMPLOYED AND THE ANALYSIS OF THE EXPERIMENTAL RESULTS. THE FEASIBILITY OF USING SPACE TECHNIQUES FOR COMMUNICATION TO AN INEXPENSIVE SHIPBOARD TERMINAL WAS DEMONSTRATED. IT IS SHOWN THAT SIMPLEX, DUPLEX OR SEMI-DUPLEX VOICE CIRCUITS; DIGITAL COMPUTER DATA; TELETYPE; FACSIMILE AND TIME SYNCHRONIZATION OF A DIGITAL CLOCK ARE FEASIBLE. RESULTS OF THE PROPAGATION, VOICE CHANNEL, DIGITAL DATA, TIME SYNCHRONIZATION AND RANGING TESTS ARE PRESENTED. THE REQUIREMENTS FOR A SHIPBOARD ANTENNA ARE ANALYSED. RECOMMENDATIONS ARE MADE, BASED ON OBSERVATIONS MADE DURING THE TEST PROGRAM, FOR THE EFFORT REQUIRED TO PROVIDE AN OPERATIONAL MARITIME MOBILE SATELLITE SYSTEM.

SUBJECT: DATA TRANSMISSION MARITIME TRAFFIC CONTROL VOICE COMMUNICATIONS

KEYWORDS: ATS-1, ATS-3, SATELLITE, COMMUNICATION, VHF, SANTA LUCIA, FACSIMILE

UNIVERSITY OF DAYTON ACCESS NUMBER: 637

DATE OF DOCUMENT/TYPE: DECEMBER 1971 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ATS-5 RANGING RECEIVER AND L-BAND EXPERIMENT VOLUME 2 DATA REDUCTION AND ANALYSIS  
AUTHOR: WESTINGHOUSE ELECTRIC CORP.  
SATELLITE: ATS-5

ABSTRACT: THE RESULTS OF RANGING AND POSITION LOCATION EXPERIMENTS PERFORMED AT THE NASA APPLICATION TECHNOLOGY SATELLITE GROUND STATION AT MOJAVE CALIFORNIA ARE PRESENTED. THE EXPERIMENTS ARE SIMULTANEOUS C-BAND AND L-BAND RANGING TO ATS-5, SIMULTANEOUS C-BAND AND VHF RANGING, SIMULTANEOUS 24-HOUR RANGING AND POSITION LOCATION USING ATS-1, ATS-3, AND ATS-5. THE DATA HANDLING AND PROCESSING TECHNIQUE IS ALSO DESCRIBED.

SUBJECT: DATA TRANSMISSION  
KEYWORDS: ATS-5, SATELLITE RANGING, L-BAND, POSITION

UNIVERSITY OF DAYTON ACCESS NUMBER: 638

DATE OF DOCUMENT/TYPE: JUNE 1974 / TECHNICAL REPORT  
TITLE OF DOCUMENT: MILLIMETER WAVELENGTH PROPAGATION STUDIES  
AUTHOR: HODGE, D. B.  
SATELLITE: ATS-5  
OBJECT OF EXPERIMENT: TO INVESTIGATE THE EFFECTS OF ATMOSPHERIC CONDITIONS ON MILLIMETER WAVE

ABSTRACT: THE INVESTIGATIONS CONDUCTED FOR THE MILLIMETER WAVELENGTH PROPAGATION STUDIES DURING THE PERIOD OF DECEMBER, 1966, TO JUNE 1974 ARE REPORTED. THESE EFFORTS INCLUDED THE PREPARATION FOR THE ATS-5 MILLIMETER WAVELENGTH PROPAGATION EXPERIMENT AND THE SUBSEQUENT DATA MILLIMETER WAVELENGTH PROPAGATION EXPERIMENT AND THE SUBSEQUENT DATA ACQUISITION AND DATA ANALYSIS. THE EMPHASIS OF THE PARTICIPATION IN THIS EXPERIMENT WAS PLACED ON THE DETERMINATION OF RELIABILITY IMPROVEMENT RESULTING FROM THE USE OF SPACE DIVERSITY ON A MILLIMETER WAVELENGTH EARTH-SPACE COMMUNICATION LINK. RELATED MEASUREMENTS INCLUDED THE DETERMINATION OF THE CORRELATION BETWEEN RADIOMETRIC TEMPERATURE AND ATTENUATION ALONG THE EARTH-SPACE PROPAGATION PATH. ALONG WITH THIS EXPERIMENTAL EFFORT A THEORETICAL MODEL WAS DEVELOPED FOR THE PREDICTION OF ATTENUATION STATISTICS ON SINGLE AND SPATIALLY SEPARATED EARTH SPACE PROPAGATION PATHS. A HIGH RESOLUTION RADAR/RADIOMETRIC SYSTEM AND LOW RESOLUTION RADAR SYSTEM WERE DEVELOPED AND IMPLEMENTED FOR THE STUDY OF INTENSE RAIN CELLS IN PREPARATION FOR THE ATS-5 MILLIMETER WAVELENGTH PROPAGATION EXPERIMENT.

SUBJECT: BROADCASTING DATA TRANSMISSION MILLIMETER WAVE  
KEYWORDS: ATS-5, SATELLITE, MILLIMETER WAVES, ATTENUATION, PROPAGATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 639

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DATE OF DOCUMENT/TYPE:

/ TECHNICAL REPORT

TITLE OF DOCUMENT:

ATS RANGING AND POSITION FIXING EXPERIMENT, PHASE 3

AUTHOR:

ANDERSON, R. F.

SATELLITE: ATS-1, ATS-3

ABSTRACT:

THE EXPERIMENTS TO TEST THE CONCEPT OF POSITION LOCATION BY RANGE MEASUREMENTS FROM PAIRS OF SATELLITES IN THE L-BAND USING ATS-5 ARE REPORTED. RESULTS OF THE RANGING EXPERIMENTS CONFIRMED THAT RANGING RESOLUTION MEASURED IN TENS OR HUNDREDS OF FEET MAY BE ACHIEVED AT VHF AND L-BAND WITHIN THE RADIO FREQUENCY BANDWIDTHS USED FOR COMMUNICATIONS WITH SIMPLE, INEXPENSIVE, AUTOMATIC EQUIPMENT.

SUBJECT:

MARITIME TRAFFIC CONTROL                      NAVIGATION

KEYWORDS:

ATS-1, ATS-3, SATELLITE, RANGING, POSITION FIXING, L-BAND, VHF, FREQUENCY

UNIVERSITY OF DAYTON ACCESS NUMBER: 640

DATE OF DOCUMENT/TYPE: 1976

/ JOURNAL ARTICLE

TITLE OF DOCUMENT:

AERONAUTICAL SATELLITES - PROGRESS REPORT ON THE JOINT AEROSAT EVALUATION PROGRAMME.

AUTHOR:

ROBINSON, J. J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT:

TO INITIATE AN INTERNATIONAL PROGRAM TO PROVIDE A SATELLITE SYSTEM FOR EXPERIMENTATION AND SYSTEM EVALUATION

ABSTRACT:

IN THE MEMORANDUM OF UNDERSTANDING (MOU) FOR A JOINT AERONAUTICAL SATELLITE EVALUATION PROGRAM, SIGNED ON AUGUST 4, 1974, THE MEMBER STATES (ESKO, U.S., AND CANADA) AGREED TO UNDERTAKE AN AERONAUTICAL EXPERIMENT AND EVALUATION PROGRAM OVER THE ATLANTIC OCEAN IN THE LATE 1970'S AND EARLY 1980'S. THE AERONAUTICAL OBJECTIVES OF THE PROGRAM ARE TO INITIATE AN INTERNATIONAL PROGRAM TO PROVIDE A SATELLITE SYSTEM FOR EXPERIMENTATION AND SYSTEM EVALUATION. THE INSTITUTIONAL ARRANGEMENTS AND THE SCOPE AND TIME SCALE OF THE AEROSAT PROGRAM ARE DESCRIBED. SOME 40 TO 50 AIRCRAFT ARE EXPECTED TO BE EQUIPPED BY THE PARTICIPATING STATES. MOST OF THESE WILL BE LONG-HAUL COMMERCIAL AIRCRAFT. A FEW RESEARCH AND EXPERIMENTAL AIRCRAFT WILL ALSO PARTICIPATE IN THE EXPERIMENTS. THE EXPERIMENTS WILL BE ACCOMMODATED BY THE NASA ATS-6 SATELLITE WHICH HAS BEEN LAUNCHED INTO A GEOSTATIONARY ORBIT. THE RESULTS OF A PRELIMINARY TRIAL ARE EXAMINED.

SUBJECT:

AIRCRAFT COMMUNICATIONS                      NAVIGATION

KEYWORDS:

ATS-6; AEROSAT SATELLITES; EUROPEAN SPACE AGENCY; GROUND SUPPORT SYSTEMS

JOURNAL TITLE:

JOURNAL OF THE BRITISH INTERPLANETARY SOCIETY, VOL. 29, PAGES 321-324

UNIVERSITY OF DAYTON ACCESS NUMBER: 641

DATE OF DOCUMENT/TYPE: OCTOBER 1972 / TECHNICAL REPORT

TITLE OF DOCUMENT: A 15.3 GHZ SATELLITE TO GROUND DIVERSITY EXPERIMENT UTILIZING THE ATS-5 SATELLITE

AUTHOR: HODGE, C. B.

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER GREEN BELT, MARYLAND

EXPERIMENT PERIOD: 1970-1971

ABSTRACT:

DURING 1970 AND 1971 THE CHARACTERISTICS OF A DIVERSITY SATELLITE-TO-GROUND COMMUNICATION LINK WERE MEASURED USING THE ATS-5 15.3 GHZ DOWNLINK. THESE DATA WERE GATHERED AT TWO GROUND RECEIVING TERMINALS SPACED 4 KM APART DURING 1970 AND 8 KM APART DURING 1971 IN THE VICINITY OF COLUMBUS, OHIO. THESE DATA HAVE BEEN SUBSEQUENTLY ANALYZED TO DETERMINE THE IMPROVEMENT IN LINK PERFORMANCE RESULTING FROM THE USE OF SPACE DIVERSITY. THE RESULTS OF THIS ANALYSIS HAVE SHOWN THAT SUBSTANTIAL IMPROVEMENTS IN LINK PERFORMANCE MAY BE GAINED THROUGH THE USE OF SPACE DIVERSITY ON SATELLITE-TO-GROUND PATHS. FOR EXAMPLE, THE DURATIONS OF FADES HAVING DEPTHS EXCEEDING 10 DB WERE REDUCED BY MORE THAN TWO ORDERS OF MAGNITUDE FOR BOTH THE 4 AND 8 KM SITE SEPARATION DISTANCES.

SUBJECT: DATA TRANSMISSION MILLIMETER WAVE

KEYWORDS: ATS-5, SATELLITE, GROUND DIVERSITY, MILLIMETER WAVES, RADIOMETER, WAVE, PROPAGATION, TEMPERATURE

UNIVERSITY OF DAYTON ACCESS NUMBER: 642

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DATE OF DOCUMENT/TYPE: MAY 1972 / TECHNICAL REPORT

TITLE OF DOCUMENT: NASA BALLOON AIRCRAFT RANGING DATA AND VOICE EXPERIMENT

AUTHOR: WISHNA, S.; HANBY, C.; REED, D.

SPONSORING AGENCY: NASA-GSFC, GREENBELT, MARYLAND

OBJECT OF EXPERIMENT: TO PROVIDE A PRELIMINARY EVALUATION OF THE PLACE CONCEPT PRIOR TO ATS-F LAUNCH. TO DEMONSTRATE THE CONCEPTS OF CONTINUOUS TIME-DIVISION MULTIPLEX TWO-WAY TRACKING OF AIRCRAFT

ABSTRACT: A SERIES OF TESTS TO EVALUATE, AT L-BAND, THE RANGING, VOICE, AND DATA COMMUNICATIONS CONCEPTS PROPOSED FOR THE AIR TRAFFIC CONTROL EXPERIMENT OF THE APPLICATIONS TECHNOLOGY SATELLITE-F ARE DESCRIBED. THE GROUND STATION FACILITIES, BALLOON PLATFORMS AND THE AIRCRAFT WERE SUPPLIED BY THE EUROPEAN SPACE RESEARCH ORGANIZATION. ONE GROUND SIMULATION AND TWO AIRCRAFT FLIGHTS AT LOW ELEVATION ANGLES WERE CONDUCTED. EVEN UNDER HIGH INTERFERENCE CONDITIONS GOOD PERFORMANCE WAS OBTAINED FOR BOTH VOICE COMMUNICATIONS AND SIDE TONE RANGING. HIGH BIT ERRORS OCCURRED IN THE DATA CHANNELS RESULTING IN FALSE COMMANDS. AS A RESULT OF THE EXPERIENCE GAINED IN OPERATING THE EQUIPMENT IN AN AIRCRAFT ENVIRONMENT SEVERAL RECOMMENDATIONS WERE MADE FOR IMPROVING THE EQUIPMENT PERFORMANCE.

SUBJECT: AIR TRAFFIC CONTROL AIRCRAFT COMMUNICATIONS

KEYWORDS: ATS-6, SATELLITE, BALLOON, AIRCRAFT, TRAFFIC CONTROL, COMMUNICATION, UHF, RANGING

UNIVERSITY OF DAYTON ACCESS NUMBER: 643

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DATE OF DOCUMENT/TYPE: MAY 1976 / TECHNICAL REPORT

TITLE OF DOCUMENT: BROADCASTING SATELLITES AND INTERNATIONAL LAW: A NEW COMMUNICATIONS TECHNOLOGY AND ITS WORLDWIDE LEGAL CONSEQUENCES

AUTHOR: THIEME, U.

ABSTRACT: THE INTERNATIONAL LEGAL QUESTIONS ASSOCIATED WITH COMMUNICATION AT A GLOBAL LEVEL VIA DIRECT BROADCASTING SATELLITES AND DISTRIBUTION SATELLITES WERE EXAMINED. A THOROUGH REVIEW OF PAST EFFORTS AND ACCOMPLISHMENTS IN THIS REGARD, AS WELL AS OF THE CURRENT SITUATION, IS PRESENTED, INCLUDING A DETAILED ANALYSIS OF COSTS AND TECHNICAL PROBLEMS. PARTICULAR EMPHASIS IS PLACED ON DIFFICULTIES WHICH MAY BE ENCOUNTERED WITH RESPECT TO THE ALLOCATION OF FREQUENCIES, THE RIGHT OF ACCESS OF THIRD NATIONS TO SATELLITES OF OTHER NATIONS, REGULATION OF PROGRAM CONTENT AND 'PIRATE' TRANSMITTERS, AND QUESTIONS CONCERNED WITH COPYRIGHT AND LIABILITY FOR DAMAGE. BASED ON THE ABOVE ANALYSIS, A NEW 'WORLD LAW', WHICH TAKES INTO ACCOUNT THE EMERGING WORLD COMMUNITY AND SUGGESTS 'HUMANITY' AS A NEW LEGAL ENTITY IS PROPOSED. NUMEROUS REFERENCES ARE PROVIDED.

SUBJECT: BROADCASTING BACKGROUND

KEYWORDS: SATELLITE, BROADCASTING, COMMUNICATION, LAW, LIABILITIES, INTERNATIONAL

UNIVERSITY OF DAYTON ACCESS NUMBER: 644

E-171

DATE OF COMPLETION/TYPE: APRIL 1973 / TEST PLAN

TITLE OF PROGRAM: VAN DER ZANDE EXPERIMENT SYSTEM DESIGN AND TEST PLAN

SYNOPSIS: NAV. R. R. R.

CONDUCTING AGENCY: NAVY, AF, DEPENDENT, MARVANT

SATELLITE: ATOM, ATOM

ABSTRACT: A SYSTEM DESIGN AND TEST PLAN ARE DESCRIBED FOR OPERATIONAL EVALUATION OF THE ISSA-GOODS SYSTEM IN LOCATION AND AIRCRAFT COMMUNICATIONS EQUIPMENT (IMAGE), AT C BAND (4265MHz), USING NASA'S GROUND STATION VAN DER ZANDE, AND THE ATOM 1 AND ATOM 2 SYNCHRONOUS SATELLITES. THE SEA TEST PHASE, FROM MARCH 1971 TO APRIL 1973, WAS SUCCESSFULLY COMPLETED. THE PRINCIPAL OBJECTIVES OF THE EXPERIMENT WERE ACHIEVED. SEVERAL PLATES/CHARTS, POSITION-LOCATION DATA IS SHOWN FOR THE VA C BAND, POSITION, LOCATION AND VELOCITY MEASUREMENTS WERE EXCELLENT. SHIP POSITION WAS DETERMINED TO 0.001 MILES. QUALITY POWER 2010 TRANSMISSIONS RESULTED AS DETERMINED FROM AUDIENCE PART OF THE INTELLIGENCE AND APPLICATION INDEX ANALYSIS. A C BAND/L BAND SATELLITE TRIANGULATION EXPERIMENT IS DESCRIBED.

KEYWORDS: AIR TRAFFIC CONTROL, AIRCRAFT COMMUNICATIONS

KEYWORDS: ATOM, ATOM, GROUND, FLARE, VAN DER ZANDE, AIRCRAFT, NAVIGATION, COMMUNICATION, C-BAND

UNIVERSITY OF DAYTON ACCESS NUMBER: 545

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DATE OF DOCUMENT/TYPE: NOVEMBER 1971 / TECHNICAL REPORT  
TITLE OF DOCUMENT: AIS SIMULTANEOUS AND TURNAROUND RANGING EXPERIMENTS  
AUTHOR: WATSON, J. S.; FURNEY, F. P.  
SPONSORING AGENCY: NASA-GSFC, GREENBELT, MARYLAND  
OBJECT OF EXPERIMENT: TO DETERMINE SPACECRAFT POSITION.

ABSTRACT:

THIS REPORT EXPLAINS THE DATA REDUCTION AND SPACECRAFT POSITION DETERMINATION USED IN CONJUNCTION WITH TWO AIS EXPERIMENTS - TRILATERATION AND TURNAROUND RANGING - AND DESCRIBES IN DETAIL A MULTILATERATION PROGRAM THAT IS USED FOR PART OF THE DATA REDUCTION PROCESS. THE PROCESS DESCRIBED IS FOR THE DETERMINATION OF THE INERTIAL POSITION OF THE SATELLITE, AND FOR FORMATING INPUT FOR RELAY PROGRAMS. IN THE TRILATERATION PROCEDURE, A GEOMETRIC DETERMINATION OF SATELLITE POSITION IS MADE FROM NEAR SIMULTANEOUS RANGE MEASUREMENTS MADE BY THREE DIFFERENT TRACKING STATIONS. TURNAROUND RANGING INVOLVES TWO STATIONS; ONE, THE MASTER STATION, TRANSMITS THE SIGNAL TO THE SATELLITE AND THE SATELLITE RETRANSMITS THE SIGNAL TO THE SLAVE STATION WHICH TURNS THE SIGNAL AROUND TO THE SATELLITE WHICH IN TURN RETRANSMITS THE SIGNAL TO THE MASTER STATION. THE RESULTS OF THE SATELLITE POSITION COMPUTATIONS USING THE MULTILATERATION PROGRAM ARE COMPARED TO RESULTS OF OTHER POSITION DETERMINATION PROGRAMS USED AT GOLDAND. ALL PROGRAMS GIVE NEARLY THE SAME RESULTS WHICH INDICATES THAT BECAUSE OF ITS SIMPLICITY AND COMPUTATIONAL SPEED THE TRILATERATION TECHNIQUE IS USEFUL IN OBTAINING SPACECRAFT POSITIONS FOR NEAR SYNCHRONOUS SATELLITES.

SUBJECT: BACKGROUND

KEYWORDS: AIS; SATELLITE; RANGING; POSITION FIXING; TRILATERATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 646

E-372

DATE OF DOCUMENT: AUGUST 1971 / TECHNICAL REPORT  
TITLE OF DOCUMENT: METEOROLOGICAL MEASUREMENTS FROM SATELLITE PLATFORMS  
AUTHOR: SHORI, V. F.; JORDAN, D. M.  
SATELLITE: ATS-1

ABSTRACT: THIS REPORT IS A COMPOSITE OF REPORTS WRITTEN ON GLOBAL METEOROLOGICAL OBSERVING SYSTEMS. THE FIVE DIFFERENT PAPERS ARE INCLUDED.  
SUBJECT: METEOROLOGY  
KEYWORDS: ATS-1; SATELLITE; WEATHER; CLOUDS; TEMPERATURE; ILLUMINANCE; ATMOSPHERE; PHOTOGRAPHY

UNIVERSITY OF DAYTON ACCESS NUMBER: 647

DATE OF DOCUMENT: AUGUST 1969 / TECHNICAL REPORT  
TITLE OF DOCUMENT: A MULTIPLE-SCALE RESEARCH PROGRAM IN TROPICAL METEOROLOGY  
AUTHOR: LORING, M. F.; JORDAN, G. L.  
SATELLITE: ATS-1

ABSTRACT: RESULTS OF FURTHER PROCESSING AND ANALYSIS OF DATA COLLECTED DURING THE 1968 BARRADOS FIELD PROGRAM, AND PRELIMINARY RESULTS OF SEVERAL DIAGNOSTIC AND PROGNOSTIC CALCULATIONS ON SEVERAL SCALES OF TROPICAL WEATHER SYSTEMS ARE PRESENTED. A DISCUSSION OF PLANS AND PREPARATIONS FOR THE 1969 BARRADOS FIELD PROGRAM IN CONJUNCTION WITH THE BARRADOS OCEANOGRAPHIC AND METEOROLOGICAL EXPERIMENT (BOOME) IS ALSO GIVEN.  
SUBJECT: METEOROLOGY  
KEYWORDS: ATS-1; SATELLITE; BARRADOS; BOOME; THESIS; METEOROLOGY; TROPICS; RAINFALL

UNIVERSITY OF DAYTON ACCESS NUMBER: 648

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DATE OF DOCUMENT/TITLE: JANUARY 1972 / TECHNICAL REPORT  
TITLE OF DOCUMENT: VERY SHORT RANGE LOCAL AREA WEATHER FORECASTING SATELLITES  
AUTHOR: PIKULA, P. J.; VONDER HAAR, T. H.  
CONVINCING AGENCY: AFRL, CAMBRIDGE, MASS.  
SATELLITE: ATS-3

ABSTRACT: QUANTITATIVE RADIANCE MEASUREMENTS FROM NASA'S ATS-3 GEOSYNCHRONOUS SATELLITE HAVE BEEN USED TO DEVELOP AND TEST A STATISTICAL FORECAST METHOD TO PREDICT AIR TERMINAL WEATHER OVER THE VERY SHORT RANGE (0-6 HOURS) TIME PERIOD. RESULTS FROM MORE THAN 800 HOURLY WEATHER SITUATIONS AT A WIDE RANGE OF U. S. WEATHER STATIONS SHOW THAT THE PARAMETERS OF CEILING AND TOTAL OPAQUE CLOUD COVER CAN BE SPECIFICALLY PREDICTED WITH SKILL, EXCEEDING PERSISTENCE FORECASTS FOR TIME PERIODS GREATER THAN TWO HOURS.

SUBJECT: METEOROLOGY  
KEYWORDS: ATS-3, SATELLITE, CLOUD, WEATHER, FORECASTING, WIND, METEOROLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 549

DATE OF DOCUMENT/TYPE: JULY 75 / PAPER

TITLE OF DOCUMENT: "BUILDING HISTORY" COMMUNICATIONS TECHNOLOGY AS A CULTURAL TOOL EDUCATIONAL USES OF THE ATS-6 SATELLITE IN ALASKA.

AUTHOR: NORTHROP, C. M.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE OF THE ATS-6 SATELLITE WAS TO DEMONSTRATE HOW IT CAN BE USED FOR EDUCATIONAL PURPOSES WITH LOW-COST SATELLITE TERMINALS IN REMOTE AREAS.

ABSTRACT: "EACH TIME WE HAVE A SHOW IT SEEMS TO IMPROVE. IT'S FUN FOR ME TO BE A PART OF AN EXPERIMENT THAT PROVES PEOPLE CAN WORK TOGETHER." ALASKA'S ATS-6 EXPERIMENT IS WELL REFLECTED THROUGH THE WORDS OF GRACE BENDER OF ANIEN, ALASKA. GRACE, AND MANY OTHER RURAL CITIZENS PARTICIPATED IN THE PLANNING, OPERATION, AND EVALUATION OF THE PROJECT. THE UNIQUE VIEWER PARTICIPATING APPROACH TO THE PLANNING AND DEVELOPMENT OF THE MATERIALS, THE MANY ORGANIZATIONAL ECONOMIC, AND POLITICAL PROBLEMS THAT HAD TO BE OVERCOME, AND INSTALLING AND MAINTAINING LOW-COST SATELLITE TERMINALS IN REMOTE AND HOSTILE ENVIRONMENTS WILL BE DISCUSSED.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS VOICE COMMUNICATIONS  
VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; REMOTE REGIONS; ALASKA; RADIO TRANSMISSION

JOURNAL TITLE: AIAA CONFERENCE

UNIVERSITY OF DAYTON ACCESS NUMBER: 650

DATE OF DOCUMENT/TYPE: JULY 75 / PAPER

TITLE OF DOCUMENT: THE FEASIBILITY OF DERMATOLOGIC CONSULTATION TO REMOTE AREAS VIA 2-WAY COLOR SATELLITE TRANSMISSION

AUTHOR: ODLAND, C. F.; ZINGER, E. A.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO TEST DERMATOLOGIC CONSULTATION FOR PHYSICIANS AND PATIENTS IN REMOTE AREAS BY ATS-6.

ABSTRACT: A RELATIVELY HIGH INCIDENCE OF SKIN PROBLEMS AND A SCARCITY OF DERMATOLOGISTS CONFRONT PATIENTS IN REMOTE AREAS SUCH AS ALASKA COMMUNITIES, NECESSITATING EXPENSE AND HARDSHIP OF SENDING PATIENTS INTO DISTANT METROPOLITAN AREAS. INTERACTIVE TELECOMMUNICATION VIA THE ATS-6 SATELLITE AFFORDED A UNIQUE OPPORTUNITY TO TEST THE FEASIBILITY OF DERMATOLOGIC CONSULTATION FOR PHYSICIANS AND PATIENTS IN REMOTE AREAS. THEREFORE, NINE PRECASTS WERE CONDUCTED WHEREIN TWO DERMATOLOGISTS AND ONE PATHOLOGIST CONSULTED WITH PHYSICIANS AND THEIR PATIENTS WITH SKIN PROBLEMS. SUBSTANTIAL SUCCESS WAS ACHIEVED IN CAMERA PICTURES OF LESIONS ADEQUATE FOR DIAGNOSTIC PURPOSES, AND EFFECTIVE CONSULTATION EVIDENCED BY CURATIVE PROGRESS IN THE PATIENTS' CONDITIONS. PATHOLOGY REPORTS WERE GIVEN BY PROJECTING SLIDES VIA SATELLITE. THE EDUCATION OF MEDICAL STUDENTS, LOCAL PHYSICIANS AND PATIENTS IN BASIC CONCEPTS OF DERMATOLOGY WAS AN ADDITIONAL BENEFIT. THE PRINCIPAL ELEMENTS IN THIS EXPERIMENT WERE TO DETERMINE (1) THE TECHNICAL FEASIBILITY OF DETERMINING SKIN LESIONS VIA SATELLITE PICTURES, (2) THE FEASIBILITY OF COMMUNICATING SUCCESSFULLY VIA TELEVISION FOR PURPOSES OF GIVING DIAGNOSTIC AND THERAPEUTIC DIRECTION TO PHYSICIANS AND THEIR PATIENTS, AND (3) THE ACCEPTANCE OF PARTICIPANTS TOWARD SATELLITE CONSULTATION. TECHNICAL FEASIBILITY WAS DETERMINED BY TECHNICIANS' ASSESSMENT LOGS, STUDIO DIRECTOR QUESTIONNAIRE ANALYSIS, PARTICIPANT IMPRESSIONS OF TECHNICAL QUALITY, AND AUDIOVISUAL TAPES OF REPRESENTATIVE CONSULTATIONS. COMMUNICATION PROCESSES WERE DOCUMENTED USING A STANDARDIZED OBSERVATIONAL SCHEDULE. SYSTEMATIC OBSERVATION OF INTERACTIONS BETWEEN INDIVIDUALS ON SATELLITE ENABLED A DESCRIPTION OF COMMUNICATION AND ITS PRESUMED RELATIONSHIP TO DEGREE OF SUCCESS IN THE CONSULTATION (E.G., COMPREHENSION OF INFORMATION AND COMPREHENSION OF INFORMATION AND COMPLIANCE WITH THERAPEUTIC DIRECTION). THESE ANALYSES ESTABLISH THE FEASIBILITY OF DERMATOLOGIC CONSULTATION BY THIS MEDIUM. IT IS ANTICIPATED THAT THE EXPERIENCE AND FINDINGS OF THE ATS-6 SATELLITE CONSULTATIONS IN DERMATOLOGY WILL LEAD TO THE EVENTUAL USE OF THIS MEDIA FOR SUCH CONSULTATION TO REMOTE AREAS WHEN ECONOMICALLY FEASIBLE.

SUBJECT: MEDICAL/HEALTH APPLICATIONS COLOR TELEVISION

KEYWORDS: ATS-6; COLOR TELEVISION; DERMATOLOGY; MEDICAL SERVICES; REMOTE REGIONS; CONSULTING; PATHOLOGICAL EFFECTS; PUBLIC HEALTH; TELEVISION TRANSMISSION

JOURNAL TITLE: AIAA CONFERENCE



DATE OF DOCUMENT/TYPE: JULY 75 / PAPER

TITLE OF DOCUMENT: ROLE OF SATELLITE BROADCAST IN REGIONAL MEDICAL EDUCATION AND HEALTH CARE DELIVERY

AUTHOR: SCHWARTZ, M.P.; JOHNSON, M. M.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO COMMUNICATE WITH UNIVERSITY OF ALASKA MEDICAL STUDENTS AND CLINICAL STUDENTS AT A FAMILY MEDICAL CLINIC IN REMOTE MOUNTAIN COMMUNITY.

ABSTRACT: THE ROLE OF SATELLITE TELECOMMUNICATION IN THE REGIONALIZED PROGRAM OF THE UNIVERSITY OF WASHI NGTON SCHOOL OF MEDICINE IS REPORTED. EXPERIMENTS IN ADMINISTRATION, CURRICULUM AND PATIENT CARE WERE CONDUCTED UTILIZING THE FULL DUPLEX COLOR VIDEO CAPABILITY OF ATS-6 TO COMMUNICATE WITH MEDICAL STUDENTS AT THE UNIVERSITY OF ALASKA AND HALF DUPLEX BLACK AND WHITE VIDEO TO COMMUNICATE WITH CLINICAL STUDENTS AT A FAMILY MEDICINE CLINIC IN A REMOTE MOUNTAIN COMMUNITY.

UNIVERSITY FACULTY AND ADMINISTRATORS REPORTED THAT SATELLITE CONFERENCES FACILITATED THE DECISION PROCESS. ADMISSIONS INTERVIEWS CAN BE SUCCESSFULLY CONDUCTED VIA SATELLITE IF ADEQUATE DISCUSSION TIME IS PROGRAMMED. STUDENTS MASTERED SELECTED SEGMENTS OF THE BASIC SCIENCE CURRICULUM PRESENTED VIA SATELLITE AS WELL AS THOSE RECEIVING INSTRUCTION IN THE TRADITIONAL CLASSROOM.

CLINICAL FACULTY REACTED POSITIVELY AND FEW DIFFERENCES WERE NOTED BETWEEN ON SITE AND SATELLITE COMMUNICATION. THE SATELLITE WAS CLEARLY PREFERABLE TO THE TELEPHONE BUT FOR MOST PURPOSES THE FACE-TO-FACE COMMUNICATION HAD DISTINCT ADVANTAGES OVER THE HALF DUPLEX BLACK AND WHITE TELECOMMUNICATION SYSTEM. DERMATOLOGY CONSULTATIONS CONDUCTED ON SATELLITE WERE SUCCESSFUL. AMPLIFICATION OF THE IMAGE AND FREQUENCY OF FOLLOW-UP CONTACTS WERE VIEWED AS ADVANTAGES.

MEDICAL EDUCATORS INVOLVED IN WAMI EXPERIMENTS AGREE THAT SATELLITE COMMUNICATION CAN PLAY A VITAL ROLE IN DECENTRALIZED MEDICAL EDUCATION AND HEALTH CARE DELIVERY.

SUBJECT: MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; MEDICAL SERVICES; PUBLIC HEALTH; TELEVISION TRANSMISSION; UNIVERSITIES

JOURNAL TITLE: AIAA CONFERENCE

UNIVERSITY OF DAYTON ACCESS NUMBER: 652

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DATE OF DOCUMENT/TYPE: 17-19 SEP 71 / PAPER

TITLE OF DOCUMENT: AEROSAT GROUND ENVIRONMENT AND TEST PLAN

AUTHOR: GARR, F. S.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THIS PAPER DISCUSSES THE TEST PLAN AND GROUND EQUIPMENT FOR AEROSAT.

ABSTRACT:

THIS PAPER DISCUSSES THE TEST PLAN AND GROUND EQUIPMENT FOR AEROSAT. THE DATA CURRENTLY AVAILABLE FROM COMPLETED TESTS AND STUDIES IS PRESENTED, AS WELL AS THE RESULTS EXPECTED FROM THE ATS-6 TESTS CURRENTLY PLANNED. THE LIMITATIONS OF THESE TESTS ARE DESCRIBED AS WELL AS OTHER REQUIREMENTS WHICH MUST BE MET TO FULLY SPECIFY AN OPERATIONAL SYSTEM. THESE REQUIREMENTS AND TEST LIMITATIONS ARE USED TO DEFINE THE TEST PLAN ACTIVITIES TO BE ACCOMPLISHED WITH THE AEROSAT EVALUATION AND DEVELOPMENT PHASE. THE GROUND EQUIPMENT DESIGN IS PRESENTED.

SUBJECT: AIR TRAFFIC CONTROL RADIO COMMUNICATIONS

KEYWORDS: ATS-6; AIR TRAFFIC CONTROL; GROUND SUPPORT EQUIPMENT; RADIO COMMUNICATION; TEST EQUIPMENT

JOURNAL TITLE: FASECON 1973

UNIVERSITY OF DAYTON ACCESS NUMBER: 653

DATE OF DOCUMENT/TYPE: JULY 75 / PAPER

TITLE OF DOCUMENT: SATELLITE BROADCASTING - CAPABILITIES FOR PUBLIC SERVICE

AUTHOR: HARTON, P. R.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE ATS-6 AND CTS SUPPORT SIMPLE, LOW COST TERMINALS IN THE DELIVERY OF TELEVISION BROADCASTING OF HEALTH-CARE AND EDUCATIONAL SERVICES.

ABSTRACT: SATELLITE BROADCAST SERVICES TO SUPPORT HEALTH-CARE AND EDUCATIONAL TRANSMISSIONS MUST WORK WITH SMALL, LOW-COST TERMINALS IN ALLOCATED RADIO-FREQUENCY BANDS. THE ATS-6 SPACECRAFT HAS SUCCESSFULLY DEMONSTRATED SUCH CAPABILITY IN THE HANDS OF NON-TECHNICAL USERS. IT SUPPORTS INTERACTIVE TELEVISION BROADCASTING TO SIMPLE, LOW-COST TERMINALS IN A NATIONWIDE SERIES OF EXPERIMENTS IN THE DELIVERY OF HEALTH-CARE AND EDUCATIONAL SERVICES. ATS-6 ACHIEVES THIS CAPABILITY WITH A VERY LARGE ANTENNA AND MODERATE TRANSMITTER POWER. THE COVERAGE LIMITATIONS INHERENT IN THIS APPROACH WILL BE OVERCOME BY THE JOINT U.S.-CANADIAN COMMUNICATIONS TECHNOLOGY SATELLITE TO BE LAUNCHED IN DECEMBER 1975. THE CTS WILL DEMONSTRATE BROADCAST CAPABILITY WITH NEW, HIGH-POWER TECHNOLOGY IN A NEWLY-ALLOCATED RADIO-FREQUENCY BAND. THIS WILL MAKE IT POSSIBLE TO USE SMALLER ANTENNAS, GREATLY ENLARGING THE AREA COVERAGE AVAILABLE TO THE MANY NON-TECHNICAL EXPERIMENTERS USING CTS FOR THEIR OWN NEEDS. A PRACTICAL APPLICATION OF THESE TECHNOLOGIES IS NOW IN DEVELOPMENT FOR OPERATIONAL BROADCASTING SERVICES IN JAPAN.

SUBJECT: BROADCASTING MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; BROADCASTING; EDUCATIONAL TELEVISION; FREQUENCY ASSIGNMENT; GROUND STATIONS; PUBLIC HEALTH; RADIO SPECTRA

JOURNAL TITLE: AIAA CONFERENCE

UNIVERSITY OF DAYTON ACCESS NUMBER: 654

DATE OF DOCUMENT/TYPER: JULY 75 / PAPER

TITLE OF DOCUMENT: THE ATS-6 HEALTH CARE EXPERIMENT AND AN APPROACH AS TO HOW TO PROCEED FROM HERE

AUTHOR: FEINER, A.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: A GENERALIZED OPERATIONAL MODEL FOR FUTURE R & D ON SATELLITE-AIDED HEALTH CARE SYSTEMS

ABSTRACT: A GENERALIZED OPERATIONAL MODEL FOR FUTURE R&D ON SATELLITE-AIDED HEALTH CARE SYSTEMS, AND SEVERAL P&C ALTERNATIVES ARE PRESENTED. EMPHASIS IS ON COST OPTIMIZATION OF THE SYSTEMS. THE BASIC VIEW HELD IS THAT THE MERIT OF R&D ACTIVITIES AND PROJECTS LIES IN THEIR ABILITY TO MOVE THE PROGRAM TOWARD THE MOST COST-EFFECTIVE OPERATIONAL SYSTEM. SOME BACKGROUND ON THE ATS-6 EXPERIMENTS IS GIVEN.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; PUBLIC HEALTH; RESEARCH AND DEVELOPMENT; COST ANALYSIS; EDUCATIONAL TELEVISION; SOCIAL FACTORS

JOURNAL TITLE: ATAA CONFERENCE

UNIVERSITY OF DAYTON ACCESS NUMBER: 655

DATE OF DOCUMENT/TYPE: JUNE 7, / PAPER

TITLE OF DOCUMENT: TECHNIQUES AND APPLICATIONS OF REMOTE SENSING IN INDIA

AUTHOR: HARINARAN, T. A.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE OBJECTIVE WAS TO APPLY MULTIBAND AERIAL PHOTOGRAPHY AND THERMAL INFRARED RADIOMETRIC TO METEOROLOGY, OCEANOGRAPHY, AGRICULTURE, LAND USE AND GEOLOGY.

ABSTRACT: MULTI-BAND AERIAL PHOTOGRAPHY AND THERMAL INFRARED RADIOMETRIC MEASUREMENTS HAVE BEEN USED IN INDIA IN A NUMBER OF REMOTE SENSING FEASIBILITY STUDIES WITH POSSIBLE APPLICATIONS IN AGRICULTURE, LAND USE, METEOROLOGY, OCEANOGRAPHY AND GEOLOGY. BASED ON THE SUCCESS OF THESE EXPERIMENTS, A MORE ELABORATE PROGRAM HAS BEEN INITIATED INVOLVING DETAILED EXPERIMENTS, COMPUTERIZED DATA PROCESSING, SOPHISTICATED SENSORS, ETC. WHILE THE PRESENT EMPHASIS HAS BEEN ON AIRBORNE REMOTE SENSING, AN EXPERIMENT IS ALREADY UNDER WAY TO COLLECT DATA FROM ATS-6 VERY HIGH RESOLUTION RADIOMETRIC IN COLLABORATION WITH NASA. THIS DATA WILL BE USED FOR METEOROLOGICAL PURPOSES.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-6; AERIAL PHOTOGRAPHY; INFRARED RADIOMETERS; REMOTE SENSORS; METEOROLOGICAL FLIGHT; THERMAL MAPPING

UNIVERSITY OF DAYTON ACCESS NUMBER: 516

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DATE OF DOCUMENT/TYPE: APRIL 1976 / PAPER

TITLE OF DOCUMENT: AIR TRAFFIC CONTROL DEMONSTRATION ASPECTS OF THE APPLICATIONS TECHNOLOGY SATELLITE-6.

AUTHOR: HILTON, F. J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO GAIN PRACTICAL KNOWLEDGE IN CONFIGURING AND USING VOICE AND DATA LINKS IN SATELLITE COMMUNICATIONS AND SURVEILLANCE FOR AIR TRAFFIC CONTROL.

ABSTRACT: AIR TRAFFIC CONTROL (ATC) DEMONSTRATIONS WERE INCLUDED IN THE APPLICATIONS TECHNOLOGY SATELLITE-6 (ATS-6) AERONAUTICAL EXPERIMENTS FOR THE PURPOSE OF GAINING PRACTICAL KNOWLEDGE IN CONFIGURING AND USING VOICE AND DATA LINKS IN SATELLITE COMMUNICATIONS AND SURVEILLANCE FOR ATC. DEMONSTRATIONS WERE PERFORMED INVOLVING THE UNITED STATES FAA, THE EUROPEAN SPACE RESEARCH ORGANIZATION (ESRO), AND CANADA. AN AIRBORNE SUBSYSTEM, A GROUND SUBSYSTEM, AND THE INTERFACE NECESSARY TO ESTABLISH THE VOICE AND DATA LINKS THROUGH THE SATELLITE AND SATELLITE EARTH TERMINAL WERE DEVELOPED. DEMONSTRATION SCENARIOS WERE DEVELOPED TO PROVIDE FOR VOICE AND DATA COMMUNICATION THROUGH THE SATELLITE AND RECORDING OF ALL COMMUNICATION AND SURVEILLANCE DATA WAS PROVIDED FOR FUTURE PLAYBACK AND ANALYSIS. THIS PAPER WILL DESCRIBE THE SPECIFIC CONFIGURATION OF THE SUBSYSTEMS, THE DETAILS OF THE TESTS USED FOR THE DEMONSTRATIONS, AND THE TECHNIQUES USED TO RECORD VOICE AND DATA AS WELL AS SOME PRELIMINARY RESULTS OBTAINED DURING THE ATC DEMONSTRATIONS.

SUBJECT: AIR TRAFFIC CONTROL VOICE COMMUNICATIONS

KEYWORDS: ATS-6, AIR TRAFFIC CONTROL, CONTROL SIMULATION, DATA LINKS, TECHNOLOGY UTILIZATION, ULTRAHIGH FREQUENCIES, VOICE COMMUNICATIONS.

JOURNAL TITLE: AIAA CONFERENCE

UNIVERSITY OF DAYTON ACCESS NUMBER: 657

E-382

DATE OF DOCUMENT/TYPE: JUNE 1973 / PAPER  
TITLE OF DOCUMENT: BUOY TRACKING OF OCEAN CURRENTS.  
AUTHOR: MOLINARI, R. L.  
SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO OBSERVE OCEAN CURRENTS BY SHIP AND SATELLITE TRACKING OF FREE-DRIFTING LAGRANGIAN PLATFORMS.

ABSTRACT: THE USE OF FREE-DRIFTING PLATFORMS TO TRACK OCEAN CURRENTS IS DISCUSSED. THE EVOLUTION OF LAGRANGIAN MEASUREMENT TECHNIQUES FROM SHIP-TRACKING TO SATELLITE-TRACKING OF PLATFORMS IS CONSIDERED BY DESCRIBING SPECIFIC DRIFTER STUDIES. DISCUSSIONS OF THESE STUDIES INCLUDE THE UNIQUENESS OF THE LAGRANGIAN RESULTS, AND OTHER POSSIBLE USES FOR THE DATA. FUTURE USES FOR BUOY TRACKING ARE ALSO SUGGESTED.

SUBJECT: NAVIGATION OCEAN CURRENTS

KEYWORDS: ATS-3, BUOYS, OCEAN CURRENTS, GROUND STATIONS, OCEANOGRAPHY, OMEGA NAVIGATION SYSTEM, TOWED BODIES, WATER POLLUTION

UNIVERSITY OF DAYTON ACCESS NUMBER: 658

DATE OF DOCUMENT/TYPE: AUGUST 1972 / PAPER  
TITLE OF DOCUMENT: TRENDS IN NASA COMMUNICATION SATELLITES.  
AUTHOR: SIMC, J. N.; ROBBINS, W. H.; STETCHERRY, D. N.  
SATELLITE: ATS-1; ATS-3; ATS-5; ATS-6.

OBJECT OF EXPERIMENT: TO DISCUSS THE FUTURE OF NASA COMMUNICATION SATELLITE TECHNOLOGY APPLICATIONS IN HEALTH CARE, CULTURE AND DATA TRANSFER NEEDS.

ABSTRACT: DISCUSSION OF THE POTENTIAL APPLICATIONS OF SATELLITE COMMUNICATIONS TECHNOLOGY IN MEETING THE NATIONAL NEEDS IN EDUCATION, HEALTH CARE, CULTURE, AND DATA TRANSFER TECHNIQUES. EXPERIMENTS WITH THE NASA ATS 1, 3 AND 5 SPACECRAFT, WHICH ARE CONDUCTED IN AN ATTEMPT TO SATISFY SUCH NEEDS, ARE REVIEWED. THE FUTURE NEEDS ARE ALSO CONSIDERED, COVERING THE REQUIREMENTS OF MULTIPLE REGION COVERAGE, COMMUNICATIONS BETWEEN REGIONS, LARGE NUMBERS OF GROUND TERMINALS, MULTICHANNEL CAPABILITY AND HIGH QUALITY TV PICTURES. THE ATS 6 AND CTS SPACECRAFT ARE EXPECTED TO BE AVAILABLE IN THE NEAR FUTURE TO EXPAND EXPERIMENTS IN THIS FIELD.

SUBJECT: DATA TRANSMISSION MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6, DATA TRANSMISSION, EDUCATION, SOCIAL FACTORS, CHANNEL CAPACITY, HEALTH, ATS-1, ATS-3, ATS-5, CTS

UNIVERSITY OF DAYTON ACCESS NUMBER: 659

DATE OF DOCUMENT/TYPE:

/ TECHNICAL MEMORANDUM

TITLE OF DOCUMENT:

CLOUD PHOTOGRAPHS FROM SATELLITE AS A HYDROLOGICAL TOOL IN REMOTE TROPICAL REGIONS

AUTHOR:

CRUSH, S. G.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT:

TO TEST RELATIONSHIP BETWEEN BRIGHTNESS MEASUREMENTS OBTAINED FROM HIGH RESOLUTION CAMERA OF AN ATS SATELLITE AND RAINFALL AND RUNOFF MEASURED ON THE GROUND.

ABSTRACT:

A RELATIONSHIP WAS SOUGHT BETWEEN BRIGHTNESS MEASUREMENTS OBTAINED FROM THE HIGH RESOLUTION CAMERA OF AN APPLIED TECHNOLOGY SATELLITE AND RAINFALL AND RUNOFF MEASURED ON THE GROUND. SURINAM WAS CHOSEN AS A SITE FOR THIS EXPERIMENT FOR THREE REASONS (1) RAIN IS ABUNDANT DURING JUNE AND JULY; (2) IT WAS IN THE CENTER OF THE ATS 3 PICTURE AND THEREFORE NAVIGATION WAS SIMPLIFIED; AND (3) IT IS A COUNTRY WITH RELATIVELY INACCESSIBLE AREAS AND IT WOULD BE ABLE TO BENEFIT FROM THE PRACTICAL RESULTS OF SUCH RESEARCH. THE DATA WERE TO BE COLLECTED DURING JUNE AND JULY, THE END OF THE MAJOR SURINAM RAINY SEASON. BECAUSE THE SATELLITE DATA HAD TO BE RECORDED ON MAGNETIC TAPE, ONLY A SHORT PERIOD OF DATA GATHERING WAS AVAILABLE.

SUBJECT:

METEOROLOGY

KEYWORDS:

ASIA, CLOUDS, DRAINAGE, RAIN, ATS-3, BRIGHTNESS

UNIVERSITY OF DAYTON ACCESS NUMBER: 668

DATE OF DOCUMENT/TYPE:

/ TECHNICAL MEMORANDUM

TITLE OF DOCUMENT:

ATS-3 OBSERVED CLOUD BRIGHTNESS FIELD RELATED TO MESO- TO SUBSYNOPTIC-SCALE RAINFALL PATTERN

AUTHOR:

SINGAR, D. N.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT:

ATS-3 TIME LAPSE CLOUD BRIGHTNESS DATA WERE ANALYZED WITH A VIEW TO CORRELATING THE TIME VARIATIONS OF CIRRUS SHIELD AREA TO RAINFALL RATE.

ABSTRACT:

THE GEOSYNCHRONOUS SATELLITE ATS 3 TIME LAPSE CLOUD BRIGHTNESS DATA WERE ANALYZED WITH A VIEW TO CORRELATING THE TIME VARIATIONS OF CIRRUS SHIELD AREA TO RAINFALL RATE IN MID-LATITUDE STORMS CHOSEN AS A SITE FOR THIS EXPERIMENT FOR THREE REASONS (1) RAIN ECHO AREAS IN THE CLOUD COMPLEX. PRELIMINARY RESULTS ARE PRESENTED ON CORRESPONDENCE BETWEEN SUBSYNOPTIC SCALE CLOUD BRIGHTNESS AND RAIN PATTERNS AND THE PRECIPITATION PATTERNS IN MID-LATITUDE FRONTAL ZONES.

SUBJECT:

METEOROLOGY

KEYWORDS:

ATS-3, BRIGHTNESS, CIRRUS, CLOUDS, RAIN, THUNDERSTORMS, CLOUD COVER, PERIODIC VARIATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 661

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DATE OF DOCUMENT/TYPE: AUGUST 1978 / TECHNICAL REPORT

TITLE OF DOCUMENT: CONVECTIVE HEAT TRANSPORT OVER THE TROPICAL MID-PACIFIC AS ESTIMATED FROM A GEOSYNCHRONOUS SATELLITE ALTITUDE.

AUTHOR: SIKDAR, D. N.

SATELLITE: ATS-1, ATS-3

OBJECT OF EXPERIMENT: CONVECTIVE HEAT AND MASS TRANSPORT OVER TROPICAL MID-PACIFIC ESTIMATED FROM SATELLITE CLOUD PHOTOGRAPHS.

ABSTRACT: IN THE FIRST PART, AN OBJECTIVE TECHNIQUE HAS BEEN DEVELOPED TO ESTIMATE THE MASS AND ENERGY EXCHANGE IN A CONVECTION SYSTEM CORRESPONDING TO CUMULONIMBUS AND CUMULONIMBUS INTENSITIES. THE TECHNIQUE INVOLVES MEASURING THE AREA CHANGE OF THE CIRRUS OUTFLOW ON A SEQUENCE OF SATELLITE CLOUD PHOTOGRAPHS OBTAINED AT GEOSTATIONARY ALTITUDE. THE DATA SHOW (1) THAT THE TECHNIQUE IS ABLE TO ISOLATE VIGOROUS AND MODERATE CONVECTION REGIMES ON THE ATS-1 AND ATS-3 SATELLITE PHOTOGRAPHS, (2) THAT OUR VALUES OF MASS AND ENERGY FLUX ARE CONSISTENT WITH GROUND BASED MEASUREMENTS SUCH AS THOSE OF BRAHAM (1952) AND BROWN (1967). THUS, THE GEOSTATIONARY SATELLITE PHOTOGRAPHS CAN BE USED TO ESTIMATE CONVECTIVE MASS AND HEAT TRANSPORT.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3, CLOUD PHOTOGRAPHY, CONVECTIVE HEAT TRANSFER, ATS-1, PACIFIC OCEAN

UNIVERSITY OF DAYTON ACCESS NUMBER: 652

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E-386

DATE OF DOCUMENT/TYPE: MAY 1970 / DATA CATALOG  
TITLE OF DOCUMENT: THE APPLICATIONS TECHNOLOGY SATELLITE METEOROLOGICAL DATA CATALOG, VOLUME 5 FINAL CATALOG, 1 AUGUST 1969 - 25 MAY 1970.  
AUTHOR: UNKNOWN  
SATELLITE: ATS-1, ATS-3  
OBJECT OF EXPERIMENT: METEOROLOGICAL DATA CATALOG FOR ATS-3 AND ATS-1.  
ABSTRACT: DATA CATALOG FOR ATS-1 AND ATS-3 WITH CHARTS, TABLES AND PUBLICATIONS.  
SUBJECT: METEOROLCGY  
KEYWORDS: ATS-1, ATS-3, CLOUD PHOTOGRAPHY, METEOROLOGICAL CHARTS, TABLES (DATA), CATALOGS (PUBLICATIONS), COLOR PHOTOGRAPHY, DATA RECORDING

UNIVERSITY OF DAYTON ACCESS NUMBER: 663

DATE OF DOCUMENT/TYPE: MAY 1969 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ATS SATELLITE COMMUNICATIONS TESTS.  
AUTHOR: WARE, J. N.; JOHNSON, M. R.  
SATELLITE: ATS-1  
OBJECT OF EXPERIMENT: TO SUMMARIZE THE RESULTS OBTAINED FROM THE ATS-1 VHF TESTS CONDUCTED ON BOARD THE USCG STATEN ISLAND.  
ABSTRACT: THIS REPORT IS A SUMMARY OF RESULTS OBTAINED FROM THE ATS-1 VHF TESTS CONDUCTED ON BOARD THE USCGC STATEN ISLAND DURING THE PERIOD FROM 19 JULY 1967 - 23 OCTOBER 1967. THE STATEN ISLAND WAS OPERATING IN THE REGION FROM SEATTLE, WASHINGTON TO THE CHUKCHI SEA (NORTH OF ALASKA).  
SUBJECT: MARITIME TRAFFIC CONTROL  
KEYWORDS: ATS-1, OCEAN STATION BRAVO, OCEAN STATION DELTA, WAGB 4 VESSEL, WAGB 270 VESSEL, RADIO TRANSMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 4

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DATE OF DOCUMENT/TYPE: NOVEMBER 1973 / TECHNICAL REPORT

TITLE OF DOCUMENT: MARITIME SATELLITE NAVIGATION/COMMUNICATION PROGRAM. VOLUME 1. EXECUTIVE SUMMARY.

AUTHOR: ALL SYSTEMS

SATELLITES: ATS-3, ATS-5

OBJECT OF EXPERIMENT: TO PROVIDE A DESCRIPTION OF THE DESIGN AND OPERATIONAL FEATURES OF THE EXPERIMENTAL MARITIME SATELLITE COMMUNICATION AND NAVIGATION (MARSCAM) SYSTEM.

ABSTRACT: VOLUME I PROVIDES IN SUMMARY FORM, A DESCRIPTION OF THE DESIGN AND OPERATIONAL FEATURES OF THE EXPERIMENTAL MARITIME SATELLITE COMMUNICATION AND NAVIGATION (MARSCAM) SYSTEM. THE MARSCAM SYSTEM CONSISTS OF (1) A MARITIME COORDINATION CENTER (MCC) LOCATED AT THE NATIONAL MARITIME RESEARCH CENTER (NMRC), KINGS POINT, NEW YORK, (2) EARTH STATIONS FOR COMMUNICATING WITH THE TWO SATELLITES USED IN THE SYSTEM, (3) THE NASA ATS-5 AND ATS-3 SYNCHRONOUS EQUATORIAL SATELLITES PROVIDING C-BAND TRANSPONDERS FOR RELAYING RF SIGNALS, (4) THE SHIP TERMINALS LOCATED ON U.S. MERCHANT SHIPS PLYING THE ATLANTIC AND PACIFIC OCEANS AND (5) USER TERMINALS LINKED WITH THE MCC THROUGH DATA PHONE LAND LINES. THIS SYSTEM PROVIDED THE MEANS FOR CONDUCTING COMMUNICATION AND NAVIGATION EXPERIMENTS IN AN OPERATIONAL ENVIRONMENT. THIS VOLUME ALSO SUMMARIZES THE RESULTS OF ENGINEERING AND USER-ORIENTED EXPERIMENTS PERFORMED DURING THE PROGRAM.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-5, ATS-3, MARITIME COMMUNICATION SYSTEMS, MARITIME NAVIGATION SYSTEMS, RADIO RELAY SYSTEMS, C-BAND AND

UNIVERSITY OF DAYTON ACCESS NUMBER: 665

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DATE OF DOCUMENT/TYPE: NOVEMBER 1973 / TECHNICAL REPORT

TITLE OF DOCUMENT: MARITIME SATELLITE NAVIGATION/COMMUNICATION PROGRAM. VOLUME 3. EXPERIMENT RESULTS.

AUTHOR: ALL SYSTEMS

SATELLITES: ATS-3, ATS-6

OBJECT OF EXPERIMENT: TO DESCRIBE THE RESULTS ACHIEVED DURING TESTING OF THE EXPERIMENTAL MARITIME SATELLITE COMMUNICATION AND NAVIGATION (MARSCAND) SYSTEM.

ABSTRACT: VOLUME 3 PROVIDES A DESCRIPTION OF THE EXPERIMENTAL RESULTS ACHIEVED DURING TESTING OF THE EXPERIMENTAL MARITIME SATELLITE COMMUNICATION AND NAVIGATION (MARSCAND) SYSTEM. THE EXPERIMENT PERIOD EXTENDED FROM MARCH 1973 TO AUGUST 1973, DURING WHICH BOTH ENGINEERING AND USER-ORIENTED TESTS WERE PERFORMED. THE MARSCAND SYSTEM CONSISTS OF (1) A MARITIME COORDINATION CENTER (MCC) LOCATED AT THE NATIONAL MARITIME RESEARCH CENTER (NMRC), KINGS POINT, NEW YORK, (2) EARTH STATIONS FOR COMMUNICATING WITH THE TWO SATELLITES USED IN THE SYSTEM, (3) THE NASA ATS-3 AND ATS-6 SYNCHRONOUS EQUATORIAL SATELLITES PROVIDING C-BAND TRANSPONDERS FOR RELAYING RF SIGNALS, (4) THE SHIP TERMINALS LOCATED ON U.S. MERCHANT SHIPS PLYING THE ATLANTIC AND PACIFIC OCEANS AND (5) USER TERMINALS LINKED WITH THE MCC THROUGH DATA PHONE LAND LINES. THIS SYSTEM PROVIDED THE MEANS FOR CONDUCTING COMMUNICATION AND NAVIGATION EXPERIMENTS IN AN OPERATIONAL ENVIRONMENT.

SUBJECT: MARITIME TRAFFIC CONTROL NAVIGATION

KEYWORDS: ATS-3, MARITIME COMMUNICATION SYSTEMS, MARITIME NAVIGATION SYSTEMS, ATS-6, RADIO RELAY SYSTEMS, C-BAND, TRANSPONDERS

UNIVERSITY OF DAYTON ACCESS NUMBER: 666

DATE OF DOCUMENT/TYPE: AUGUST 1972 / TECHNICAL REPORT

TITLE OF DOCUMENT: USE OF ATS PICTURES IN HURRICANE MODIFICATION

AUTHOR: FUJITA, T. T.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: ATS PICTURES TAKEN AT FREQUENT INTERVALS WERE ANALYZED IN AN ATTEMPT TO DETERMINE POSSIBLE CHANGES OF HURRICANE

ABSTRACT: ATS PICTURES TAKEN AT FREQUENT INTERVALS DURING A 4-DAY PERIOD, SEPTEMBER 25-28, WERE ANALYZED IN AN ATTEMPT TO DETERMINE POSSIBLE CHANGES OF HURRICANE GINGER SEEDING ON SEPTEMBER 26 AND 28. BOTH NEGATIVES AND NASA'S 4X ENLARGEMENTS FROM DIGITAL TAPES WERE INVESTIGATED. ALL PICTURES TAKEN ON EACH DAY WERE TIME-INTEGRATED TO DETERMINE THE DAY-TO-DAY VARIATIONS. ONE-DAY SEQUENCE OF ATS PICTURES WERE ALSO DIVIDED INTO THREE PERIODS TO PRODUCE 3 TIME-INTEGRATED IMAGES EACH DAY. SERIES OF 5-PICTURE TIME INTEGRATIONS WERE ALSO MADE, FROM WHICH A TIME-INTEGRATED MOVIE OF GINGER WAS PRODUCED. MEANWHILE, THE CHARACTERISTICS OF THE EYE WERE DETERMINED BASED ON ATS PICTURES TO DEFINE A NUMBER OF EYE PARAMETERS WHICH ARE EYE TYPE, WALL-CLOUD DIAMETER, EQUIVALENT EYE DIAMETER, EYE INDEX, AND ESTIMATED CENTRAL PRESSURE.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3, HURRICANE GINGER, STANFORD PROJECT, CLOUD SEEDING, AERIAL PHOTOGRAPHS, STATISTICAL ANALYSIS

UNIVERSITY OF DAYTON ACCESS NUMBER: 667

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DATE OF DOCUMENT/TYPE: SEPTEMBER 1975 / PAPER

TITLE OF DOCUMENT: INDO-UNITED STATES COOPERATION IN SPACE COMMUNICATION

AUTHOR: HINGOPANI, R. C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: DISCUSSES SOME OF THE CHIEF FEATURES OF INDO-U.S. AGREEMENT OF 1969 ON COOPERATION IN SPACE RESEARCH AND COMMUNICATION.

ABSTRACT:

THE PAPER DISCUSSES SOME OF THE CHIEF FEATURES OF THE INDO-UNITED STATES AGREEMENT OF 1969 ON COOPERATION IN SPACE RESEARCH AND COMMUNICATION. THE AGREEMENT STATES THE GENERAL OBJECTIVES OF (1) TO DEVELOP, TEST AND MANAGE A DIRECT INSTRUCTIONAL TV SYSTEM IN RURAL AREAS IN INDIA; (2) DEMONSTRATE THE POTENTIAL OF SATELLITE TECHNOLOGY FOR MASS COMMUNICATION IN DEVELOPING COUNTRIES; AND (3) TO STIMULATE NATIONAL DEVELOPMENT IN INDIA. SPECIFIC INDIA OBJECTIVES ARE TO CONTRIBUTE TO FAMILY PLANNING AND NATIONAL INTEGRATION AND TO IMPROVE AGRICULTURAL PRODUCTION. INDIAN RESPONSIBILITIES INVOLVED DEVELOPMENT AND MAINTENANCE OF THE GROUND SEGMENT, DEVELOPING PROGRAM MATERIAL, AND IMPLEMENTING AN EXPERIMENT EVALUATION REPORT. NASA'S RESPONSIBILITY INVOLVED PLACING ATS-6 IN ORBIT AND POSITIONING IT WITHIN VIEW OF INDIA FOR ONE YEAR, WHICH WILL RUN FROM JULY, 1975 TO JULY, 1976. AFTER THIS INDIA MAY USE BALLCON REPEATER STATIONS TO CONTINUE THE PROGRAM, BUT WILL TRY TO NEGOTIATE FOR USE OF A NEW COMMUNICATIONS SATELLITE.

SUBJECT: EDUCATIONAL APPLICATIONS VIDEO COMMUNICATIONS

KEYWORDS: ATS-6, INDIAN SPACE PROGRAM, DOMESTIC SATELLITE COMMUNICATIONS SYSTEMS, EDUCATIONAL TELEVISION, RURAL AREAS, SPACE COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 668

DATE OF DOCUMENT/TYPE: JUNE 1972 / TECHNICAL REPORT

TITLE OF DOCUMENT: ATS-5 SIGNAL CHARACTERISTICS AT 15.3 GHZ AND RELATED EXPERIMENTS AT 15 AND 35 GHZ.

AUTHOR: TEXAS, UNIVERSITY

SPONSORING AGENCY: GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS-5

OBJECT OF EXPERIMENT: ATS-5 MILLIMETER WAVE SIGNAL CHARACTERISTICS AND PERFORMANCE PREDICTION BASED ON METEOROLOGICAL PARAMETERS AND POINT-TO-POINT TRANSMISSIONS OVER EARTH SURFACE.

ABSTRACT:

THIS REPORT PRESENTS THE RESULTS OF OBSERVATIONS BY THE UNIVERSITY OF TEXAS OF THE 15.3 GHZ EXPERIMENT ASSOCIATED WITH THE ATS-5 SATELLITE AND OF RELATED EXPERIMENTS DESIGNED TO PROVIDE INFORMATION ON EARTH-SATELLITE COMMUNICATION LINKS AT 15.3 AND 31.65 GHZ.

THE 15.3 GHZ TRANSMISSIONS WERE OBSERVED AT AUSTIN, TEXAS OVER AN EIGHTEEN MONTH INTERVAL PRIMARILY DURING PERIODS OF RAIN. MEASUREMENTS WERE ALSO MADE AT MOUNT LOCKE, NEAR FORT DAVIS, TEXAS BUT ONLY FOR A PERIOD OF TWO MONTHS.

ESSENTIALLY CONTINUOUS MEASUREMENTS WERE MADE AT AUSTIN, TEXAS OF THE SKY TEMPERATURE AT 35 GHz LOOKING IN THE DIRECTION OF THE ATS-5 SATELLITE OVER AN INTERVAL OF FOUR MONTHS.

POINT-TO-POINT TRANSMISSIONS OVER THE EARTH'S SURFACE AT 15 AND 35 GHZ AND VARIOUS METEOROLOGICAL PARAMETERS WERE STUDIED AS POSSIBLE MEANS OF PREDICTING PERFORMANCE OVER A SATELLITE-EARTH PATH.

THE BASIC FEATURES OF THE EXPERIMENTS AND THE PRIMARY RESULTS ARE PRESENTED IN PART 1 WHICH IS INTENDED TO BE AN INDEPENDENT UNIT. MORE DETAILED DESCRIPTIONS ARE GIVEN IN THIS REPORT, PART 2, WITH SUBSTANTIATING DATA FOR CONCLUSIONS STATE IN PART 1.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-5; MILLIMETER WAVES; SIGNAL MEASUREMENT; METEOROLOGICAL PARAMETERS; PERFORMANCE PREDICTION; SPACECRAFT TRAJECTORIES

UNIVERSITY OF DAYTON ACCESS NUMBER: 669

DATE OF DOCUMENT/TYPE: MARCH 1975 / PROGRESS REPORT

TITLE OF DOCUMENT: INTEGRATED L-BAND EXPERIMENT

AUTHOR: WESTINGHOUSE ELECTRIC CORPORATION

SPONSORING AGENCY: GLODARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO INVESTIGATE TECHNOLOGY AND CONCEPTS APPLICABLE TO AERONAUTICAL AND MARITIME SATELLITE APPLICATIONS.

ABSTRACT: THE EFFORTS OF THE PARTICIPANTS IN THE CONDUCT OF THE ATS-6 INTEGRATED L-BAND EXPERIMENT DURING THE PERIOD SEPTEMBER TO DECEMBER 1974 ARE SUMMARIZED. THIS EFFORT WAS TO INVESTIGATE TECHNOLOGY AND CONCEPTS APPLICABLE TO AERONAUTICAL AND MARITIME SATELLITE APPLICATION.

SUBJECT: AIRCRAFT COMMUNICATIONS DATA TRANSMISSION MARITIME TRAFFIC CONTROL  
NAVIGATION SEARCH AND RESCUE

KEYWORDS: ATS-6; ULTRAHIGH FREQUENCIES; DATA ACQUISITION; TECHNOLOGY ASSESSMENT

UNIVERSITY OF DAYTON ACCESS NUMBER: 670

DATE OF DOCUMENT/TYPE: NOVEMBER 1966 / TECHNICAL REPORT

TITLE OF DOCUMENT: NASA/ESSA WEFAX EXPERIMENT, PARTICIPANT'S GUIDE

AUTHOR: GERRY, L.; HALL, A. R.

SPONSORING AGENCY: NASA, GLODARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO INVESTIGATE THE FEASIBILITY OF TRANSMITTING PREPARED WEATHER MAP ANALYSES AND PROGNOSSES FROM A CENTRAL SOURCE, VIA OF SATELLITE TO GROUND STATIONS.

ABSTRACT: THE WEFAX PARTICIPANTS GUIDE, IS AN OPERATING REFERENCE FOR USE WITH THE ATS-1 WEATHER FACSIMILE (WEFAX) EXPERIMENT. IT DESCRIBES IN DETAIL THE PARTICULARS OF THE EXPERIMENT, INCLUDING THE AIMS OF THE PROJECT AND THE METHODS OF OVERALL OPERATION. INSTRUCTIONS ARE GIVEN ENABLING USERS TO PLAN THEIR ACTIVITIES FOR SUCCESSFUL PARTICIPATION IN THE EXPERIMENT. THIS EXPERIMENT WILL INVESTIGATE THE FEASIBILITY OF TRANSMITTING PREPARED WEATHER MAP ANALYSES AND PROGNOSSES FROM A CENTRAL SOURCE, VIA AN EARTH SYNCHRONOUS SATELLITE RELAY SYSTEM, TO APT GROUND STATIONS WITHIN THE ACQUISITION AREA OF THE SATELLITE SIGNAL.

IN EVALUATING THIS COMMUNICATIONS MEDIUM AS A MEANS OF WEATHER DATA DISSEMINATION, IT IS DESIRABLE THAT AS MANY AS POSSIBLE OF THE EXISTING APT GROUND STATIONS WITHIN RECEIVING RANGE COOPERATE IN THIS EXPERIMENT OVER AN EXTENDED PERIOD (APPROXIMATELY ONE YEAR).

SUBJECT: DATA TRANSMISSION METEOROLOGY

KEYWORDS: ATS-1; AUTOMATIC PICTURE TRANSMISSION; METEOROLOGICAL CHARTS; WEATHER FORECASTING; NORTHERN HEMISPHERE; SOUTHERN HEMISPHERE; SUPERHIGH FREQUENCIES; VERY HIGH FREQUENCIES

UNIVERSITY OF DAYTON ACCESS NUMBER: 671

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DATE OF DOCUMENT/TYPE: OCTOBER 1971 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE ATS-F MILLIMETER WAVE PROPAGATION EXPERIMENT

AUTHOR: IPPOLITO, L. J.

SATELLIT: TS-6

OBJECT OF EXPERIMENT: PROPAGATION CHARACTERISTICS OF SPACE-TO-EARTH LINKS CENTERED AT 20 AND 30 GHZ AS DETERMINED BY ATS-6

ABSTRACT: THE ATS-F MWE IS DESIGNED TO EVALUATE THE PROPAGATION CHARACTERISTICS OF SPACE-TO-EARTH LINKS CENTERED AT 20 GHZ AND 30 GHZ DURING MEASURED METEOROLOGICAL CONDITIONS. THIS DOCUMENT PRESENTS A COMPLETE REVIEW OF THE ATS-F MWE AS PRESENTLY IMPLEMENTED, INCLUDING SPACECRAFT AND GROUND STATION SYSTEMS, DATA ACQUISITION AND DATA PROCESSING TECHNIQUES.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-6; MILLIMETER WAVES; SPACE COMMUNICATIONS; WAVE PROPAGATION; RADIO ATTENUATION; ELECTROMAGNETIC PROPERTIES

UNIVERSITY OF DAYTON ACCESS NUMBER: 672

DATE OF DOCUMENT/TYPE: MAY 1971 / TECHNICAL REPORT

TITLE OF DOCUMENT: VHF NAVIGATION EXPERIMENT

AUTHOR: DUBOSE, J. F.; WHELDON, F. A.; COATES, J. L.; WASON, C. R.; CLARK, R. L.; BATTLE, J. O.; LONE, W. L.

SPONSORING AGENCY: NASA, GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND 20771

SATELLIT: ATS-1; ATS-3

OBJECT OF EXPERIMENT: TO DETERMINE THE ACCURACY THAT COULD BE OBTAINED IN LOCATING THE POSITION OF AN AIRCRAFT WHEN USING SIDETONE RANGING SIGNALS RELAYED BY ATS-1 AND ATS-3

ABSTRACT: THIS REPORT DOCUMENTS THE RESULTS OF AN EXPERIMENT TO DETERMINE THE ACCURACY THAT COULD BE OBTAINED IN LOCATING THE POSITION OF AN AIRCRAFT WHEN USING SIDETONE RANGING SIGNALS RELAYED BY TWO SYNCHRONOUS SATELLITES, ATS-1 AND ATS-3. A REAL-TIME DISPLAY SYSTEM WAS DEVELOPED BY TEXAS INSTRUMENTS THAT ALLOWED THE AIRCRAFT POSITION, AS DERIVED BY THE SATELLITE SYSTEM, TO BE COMPARED WITH THAT DERIVED FROM AN AIRPORT SURVEILLANCE RADAR. THE EXPERIMENT DEMONSTRATED THAT THE USE OF DIFFERENTIAL POSITION LOCATION TECHNIQUES COULD PROVIDE LOCATION ACCURACY OF APPROXIMATELY 3 NAUTICAL MILES; FURTHER PROCESSING REDUCED THE ERROR TO 2 NAUTICAL MILES. RECOMMENDATIONS ARE MADE THAT WOULD IMPROVE THE SYSTEM ACCURACY TO APPROXIMATELY 1 NAUTICAL MILE.

SUBJECT: NAVIGATION VOICE COMMUNICATIONS

KEYWORDS: ATS-1; ATS-3; SATELLITE AIR TRAFFIC CONTROL; SATELLITE NAVIGATION; SIDETONE RANGING; DIFFERENTIAL POSITION LOCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 673

DATE OF DOCUMENT/TITLE: OCTOBER 1975 / PAPER

TITLE OF DOCUMENT: THE COMSAT 13 AND 18 GHZ PROPAGATION EXPERIMENT

AUTHOR: KING, J. L. HYDE, G.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO COLLECT SUFFICIENT LONG-TERM DATA ON ATMOSPHERIC ATTENUATION FOR A LARGE NUMBER OF LOCATIONS TO PERMIT DETERMINATION OF SYSTEM POWER MARGINS

ABSTRACT:

THE ATS-6 COMSAT PROPAGATION EXPERIMENT (CPE) WAS DESIGNED TO GATHER STATISTICAL DATA ON ATTENUATION CAUSED BY RAIN AND SNOW AT 13 AND 18 GHZ. THESE DATA WILL BE USED TO DETERMINE SYSTEM DESIGN PARAMETERS FOR FUTURE COMMUNICATIONS SATELLITE SYSTEMS OPERATING AT FREQUENCIES ABOVE 10 GHZ. THE EXPERIMENT USED 25, 18 GHZ, AND 15, 13 GHZ UNATTENDED GROUND TRANSMITTERS AT TWENTY-FIVE LOCATIONS IN THE EASTERN US TO TRANSMIT TO THE ATS-6. THE ATS-6 TRANSPONDER CONVERTS THESE CARRIERS TO FREQUENCIES AROUND 4150 MHZ AND TRANSMITS THESE SIGNALS TO THE COMSAT LARGE HORN ANTENNA/DATA ACQUISITION AND RECEIVING FACILITY AT ANDOVER, MAINE. THIS FACILITY CALIBRATES AND DIGITALLY RECORDS EACH CARRIER ONCE PER SECOND.

THESE DATA HAVE BEEN PROCESSED AND ANALYZED FOR THE PERIOD FROM JULY TO NOVEMBER 2, 1972. PLANS ARE NOW BEING MADE TO CONDUCT THE EXPERIMENT IN EUROPE AND INDIA DURING THE 35 DEGREE EAST LONGITUDE SITE PHASE OF ATS-6 OPERATIONS.

SUBJECT: METEOROLOGY

KEYWORDS: ATMOSPHERIC ATTENUATION; ATS-6; COMSAT PROGRAM; MICROWAVE FREQUENCIES; PRECIPITATION (METEOROLOGY); GROUND STATIONS; HORN ANTENNAS; SIGNAL TRANSMISSION; TRANSPONDERS

UNIVERSITY OF DAYTON ACCESS NUMBER: 674

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DATE OF DOCUMENT/TITLE: 21-27 JULY 1975 / PAPER

TITLE OF DOCUMENT: VETERANS ADMINISTRATION SATELLITE TRANSMITTED EXPERIMENTS IN BIOMEDICAL COMMUNICATIONS

AUTHOR: DDM, R. H. CHAMASKIA, G. G.

SATELLITE: -6

OBJECT OF EXPERIMENT: EXPLORE AND DEVELOP NEW METHODS OF EXCHANGING MEDICAL INFORMATION FOR BOTH EDUCATIONAL AND CLINICAL PURPOSES

ABSTRACT: THE EXCHANGE OF MEDICAL INFORMATION PROGRAM OF THE VETERANS ADMINISTRATION AUTHORIZES THE AGENCY TO SUPPORT INNOVATIVE PROJECTS IN BIOMEDICAL COMMUNICATIONS. ONE OF THESE PROJECTS INVOLVED THE CONDUCT OF A SERIES OF BIOMEDICAL COMMUNICATIONS EXPERIMENTS VIA APPLICATIONS TECHNOLOGY SATELLITE -6 (ATS-6). SOME 90 HOURS OF BROADCASTING INVOLVING ABOUT 75 SUBJECTS WERE DEVELOPED AND PRESENTED VIA FIVE MODES. THESE INCLUDED MEDICAL GRAND ROUNDS, VIDEO SEMINARS, COMPUTER ASSISTED INSTRUCTION, CLINIC FOR OUTPATIENTS AND FAMILIES AND TELECONSULTATION. PRELIMINARY DATA INDICATES A HIGH DEGREE OF ACCEPTABILITY BY THE TEN VA HOSPITALS WHICH PARTICIPATED INTERACTIVELY IN THIS PROJECT.

SUBJECTS: BROADCASTING VOICE COMMUNICATIONS EDUCATIONAL APPLICATIONS VIDEO COMMUNICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; BIOMEDICAL DATA; COMMUNICATION SATELLITES; MEDICAL SERVICES; PUBLIC HEALTH; CLINICAL MEDICINE; TELECOMMUNICATIONS; VIDEO COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 675

DATE OF DOCUMENT/TITLE: 1974 / TECHNICAL REPORT

TITLE OF DOCUMENT: AESP DATA BASE INFORMATION

AUTHOR: MCAPLE, W. J.; AUSNESS, C.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D. C.

OBJECT OF EXPERIMENT: TO DEVELOP COURSES IN READING AND CAREER-EDUCATION INSTRUCTION FOR TEACHERS AND TO DETERMINE THE FEASIBILITY OF CONDUCTING SUCH COURSES OVER A LARGE GEOGRAPHICAL AREA VIA COMMUNICATIONS SATELLITES

ABSTRACT: THE APPALACHIAN EDUCATION SATELLITE PROJECT (AESP) WAS CONCEPTUALIZED IN 1973 (1) TO DEVELOP COURSES IN READING AND CAREER-EDUCATION INSTRUCTION FOR TEACHERS IN THE APPALACHIAN REGION, AND (2) TO DETERMINE THE FEASIBILITY OF CONDUCTING SUCH COURSES OVER A LARGE GEOGRAPHICAL AREA VIA COMMUNICATIONS SATELLITES. TO ASSIST IN THE INITIAL PLANNING FOR THE PROJECT, DATA WERE GATHERED ON THE VARIOUS LOCALITIES THAT WOULD BE INVOLVED IN THE PROJECT. INCLUDED IN THE DATA WERE: (1) DEMOGRAPHIC CHARACTERISTICS, (2) ECONOMIC CONDITIONS, (3) EDUCATIONAL CHARACTERISTICS, (4) THE NATURE AND SCOPE OF EXISTING CAREER-EDUCATION PROGRAMS IN THE REGION, (5) A LISTING OF STANDARDIZED TESTS USED IN THE REGION, AND (6) UNIVERSITIES IN THE REGION THAT COULD OFFER GRADUATE CREDIT FOR AESP COURSES. AN ANALYSIS OF THE DATA SUGGESTS THAT THERE IS NOT A HOMOGENEOUS APPALACHIAN POPULATION TO WHICH A PRODUCT CAN EASILY BE SHAPED.

SUBJECTS: EDUCATIONAL APPLICATIONS

KEYWORDS: COMPUTER ASSISTED INSTRUCTION; DATA BASES; EDUCATIONAL BACKGROUND; EDUCATIONAL TELEVISION; INFORMATION SYSTEMS; READING; STANDARDIZED TESTS; APPALACHIA; COMMUNICATION SATELLITES

UNIVERSITY OF DAYTON ACCESS NUMBER: 676

DATE OF DOCUMENT/TYPE: JULY 1975 / PAPER

TITLE OF DOCUMENT: CANADIAN EXPERIMENTS IN THE SOCIAL APPLICATIONS OF SATELLITE TELECOMMUNICATIONS

AUTHOR: CECY-STAMPER, A. E.; BLEVIS, B. G.

SATELLITE: CTS

OBJECT OF EXPERIMENT: SUMMARIZES EXPERIMENTS IN THE AREAS OF HEALTH, EDUCATION, COMMUNITY DEVELOPMENT, AND ADMINISTRATION

ABSTRACT: THIS PAPER DISCUSSES THE CANADIAN COMMUNICATIONS EXPERIMENTS PROJECT WHICH IS BEING CONDUCTED IN CONJUNCTION WITH THE DEVELOPMENT AND TESTING OF THE COMMUNICATIONS TECHNOLOGY SATELLITE. IT SUMMARIZES EXPERIMENTS IN THE AREAS OF HEALTH, EDUCATION, COMMUNITY DEVELOPMENT, AND ADMINISTRATION. DEVELOPING TRENDS IN SOCIAL DEVELOPMENT SERVICES AND THEIR PRESENT PRIORITIES ARE POINTED OUT AND ARE RELATED TO POTENTIAL APPLICATIONS OF TELECOMMUNICATIONS. THE PAPER FOCUSES ON REMOTE AREAS, WHERE ACCESS TO SOCIAL DEVELOPMENT SERVICES IS LIMITED AND DIFFICULT TO OBTAIN. THE CO-ORDINATION OF ACTIVITIES AND RESPONSIBILITIES OF THE INDIVIDUAL EXPERIMENTERS AND THE FEDERAL DEPARTMENT OF COMMUNICATIONS IS DISCUSSED. THE POTENTIAL INFLUENCE OF THE COMMUNICATIONS EXPERIMENTS PROJECT ON FUTURE COMMUNICATIONS DEVELOPMENTS IS OUTLINED. A NUMBER OF TASKS ARE ENUMERATED WHICH WILL ASSIST POLICY ANALYSIS AND DEVELOPMENT FOR FUTURE APPLICATIONS OF TELECOMMUNICATIONS TO THE DELIVERY OF SOCIAL DEVELOPMENT SERVICES.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
VOICE COMMUNICATIONS VIDEO COMMUNICATIONS

KEYWORDS: CTS; EDUCATIONAL TELEVISION; REMOTE REGIONS; TELECOMMUNICATIONS

JOURNAL TITLE: AIAA CONFERENCE

UNIVERSITY OF DAYTON ACCESS NUMBER: 677

DATE OF DOCUMENT/TYPE: 31 DEC 75 / JOURNAL ARTICLE

TITLE OF DOCUMENT: ATS-6 SATELLITE 20GHZ PROPAGATION MEASUREMENTS AT LOW ELEVATION ANGLES

AUTHOR: STUTZMAN, W. L.; BOSTIAN, C. W.; MANUS, E. A.; MARSHALL, R. E.; WILEY, P. H.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO MONITOR LOW ELEVATION ANGLES FROM THE ATS-6 20GHZ DOWNLINK

ABSTRACT: THE 20 GHZ DOWNLINK FROM THE ATS-6 SATELLITE WAS MONITORED ALMOST CONTINUOUSLY FOR LOW ELEVATION ANGLES (BELOW 9 DEG). THE AUTHORS MEASURED THE COPOLARIZED AND CROSSPOLARIZED SIGNALS RECEIVED AS WELL AS THE LOCAL RAIN RATE. DATA ARE PRESENTED FOR CLEAR-WEATHER SCINTILLATIONS, RAIN ATTENUATION, DEPOLARIZATION AND OTHER EFFECTS.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-6; RADIO TRANSMISSION; ATMOSPHERIC ATTENUATION; ATMOSPHERIC OPTICS; DEPOLARIZATION; SCINTILLATION; WEATHER

JOURNAL TITLE: ELECTRONICS LETTERS, VOLUME 11, PAGES 635, 636

UNIVERSITY OF DAYTON ACCESS NUMBER: 678

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DATE OF DOCUMENT/TYPE: OCT 76 / PAPER

TITLE OF DOCUMENT: ATS-6 DESCRIPTION

AUTHOR: FROISCH, W. J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: THE MAJOR DESIGN FEATURES OF THE ATS-6 ARE DISCUSSED.

ABSTRACT: ATS-6, THE WORLD'S MOST POWERFUL AND VERSATILE COMMUNICATIONS SATELLITE, IS BRIEFLY DESCRIBED. KEY DESIGN FEATURES OF THE SPACECRAFT ARE HIGHLIGHTED AND THE LARGE VARIETY OF EXPERIMENTS IDENTIFIED. EARLY RESULTS FROM THE RECENT GEOS TRACKING AND DATA RELAY EXPERIMENT ARE PRESENTED.

SUBJECT: BROADCASTING VOICE COMMUNICATIONS VIDEO COMMUNICATIONS

KEYWORDS: ATS-6: PARAPOLIC ANTENNAS: TELEVISION TRANSMISSION: BROADCASTING: COLOR TELEVISION: GROUND STATION: FROIC RELAY SYSTEMS

JOURNAL TITLE: EASCON 1975

UNIVERSITY OF DAYTON ACCESS NUMBER: 679

DATE OF DOCUMENT/TYPE: MAY 77 / INFORMAL NOTES

TITLE OF DOCUMENT: ON OBSERVING A SATELLITE TRANSMISSION IN APPALACHIA

AUTHOR: ENGLE, NICK

SATELLITE: ATS-6

ABSTRACT: A DESCRIPTION OF THE AUTHOR'S TRIP TO MCHEMRY, MARYLAND, TO OBSERVE A SATELLITE TRANSMISSION OF THE APPALACHIAN EDUCATIONAL SATELLITE PROGRAM. THE PAPER DESCRIBES THE PEOPLE AND FACILITIES INVOLVED IN THE DEMONSTRATION.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6: SATELLITE: EDUCATION: APPALACHIA: PENDING: AESP

UNIVERSITY OF DAYTON ACCESS NUMBER: 680

DATE OF DOCUMENT/TYPE: MARCH/APRIL 1974 / JOURNAL ARTICLE  
 TITLE OF DOCUMENT: EVALUATION INDICATES GOOD RESULTS FOR PROJECT "SACI"  
 AUTHOR: SPATES, P. G.  
 SPONSORING AGENCY: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, WASHINGTON, D. C. 20546  
 SATELLITE: ATS-6  
 OBJECT OF EXPERIMENT: TO DEMONSTRATE THE FEASIBILITY OF USING SATELLITES IN EDUCATION  
 ABSTRACT: AN EVALUATION IS GIVEN OF THE RESULTS OF PROJECT SACI, PERFORMED BY TEAMS OF PEDAGOGUES AND EDUCATIONAL PROGRAM PRODUCERS. THE RESULTS ARE DESCRIBED, AND IT IS CONCLUDED THAT SATISFACTORY RESULTS WERE OBTAINED.  
 SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
 KEYWORDS: ATS-6; EDUCATION; TELEVISION SYSTEMS; TELEVISION TRANSMISSION; TRAINING DEVICES; BRAZIL; SCHOOLS; TELECOMMUNICATION  
 JOURNAL TITLE: SPACE RESEARCH INSTITUTE NEWS, VOLUME 3, ISSUE 15, PAGES 4-7

UNIVERSITY OF DAYTON ACCESS NUMBER: 681

DATE OF DOCUMENT/TYPE: OCT 75 / PAPER  
 TITLE OF DOCUMENT: MARAD MARITIME EXPERIMENTS USING THE NASA ATS-6 SATELLITE  
 AUTHOR: BRADLEY, P. L.; KAMINSKY, Y.  
 SATELLITE: ATS-6  
 OBJECT OF EXPERIMENT: TO EVALUATE COMMUNICATION SERVICE SIMILAR TO THAT WHICH WILL BE AVAILABLE WITH THE MARITIME COMMERCIAL SATELLITE SYSTEM  
 ABSTRACT: THE OBJECTIVES OF THE MARAD MARITIME EXPERIMENTS (CONDUCTED IN THE L-BAND FAN BEAM MODE) USING THE ATS-6 SATELLITE ARE DETAILED. THEY INCLUDE THE FOLLOWING (1) TO EVALUATE THE ECONOMIC BENEFITS OF FLEET OPERATIONS THROUGH THE USE OF SATELLITE COMMUNICATIONS, (2) TO EVALUATE PERFORMANCE CAPABILITY FOR SHIPBOARD TERMINAL EQUIPMENT NEEDED TO ESTABLISH VARIOUS GRADES OF FLEET OPERATIONS SERVICES USING COMMERCIAL SATELLITE SYSTEMS, (3) TO DETERMINE THE EFFECTS OF SIGNAL PROPAGATION, SHIP RADIO FREQUENCY NOISE, AND SHIP ANTENNA POINTING ON THE MARITIME COMMUNICATIONS AND NAVIGATION CHANNEL, AND (4) TO EVALUATE VARIOUS MODEMS FOR THE TRANSMISSION AND RECEPTION OF VOICE, DATA AND POSITION LOCATION SIGNALS VIA SATELLITE SYSTEMS.  
 SUBJECT: MARITIME TRAFFIC CONTROL VOICE COMMUNICATIONS  
 KEYWORDS: ATS-6; SHIP TERMINALS; DIGITAL DATA; MODEMS; POSITION(LOCATION); SHIP ANTENNAS; SATELLITE; TRACKING; VOICE COMMUNICATION  
 JOURNAL TITLE: PASCON 1975

UNIVERSITY OF DAYTON ACCESS NUMBER: 682

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DATE OF DOCUMENT/TYPE: OCT 75 / PAPER

TITLE OF DOCUMENT: MARITIME SAFETY COMMUNICATION EXPERIMENTS WITH THE ATS-6 SATELLITE

AUTHOR: GUTWEIN, J. M.; WOLFSON, J. A.; ENGLES, P. D.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO PRODUCE DATA USEFUL FOR PREPARING SPECIFICATIONS OF SHIP TERMINALS FOR FUTURE OPERATIONAL SATELLITE SYSTEMS.

ABSTRACT: MARITIME AND AERONAUTICAL SATELLITE COMMUNICATIONS EXPERIMENTS WERE CONDUCTED USING THE NASA APPLICATIONS TECHNOLOGY SATELLITE-NUMBER (ATS-6) FROM SEPTEMBER 1974 THROUGH APRIL 1975. THE ATS-6 SATELLITE MARITIME EXPERIMENTS HAVE PRODUCED DATA USEFUL FOR PREPARING SPECIFICATIONS OF SHIP TERMINALS FOR POSSIBLE FUTURE OPERATIONAL SATELLITE SYSTEMS. EVALUATIONS WERE PERFORMED OF A SHIPBOARD ANTENNA DESIGN, VARIOUS TYPES OF VOICE, DATA, AND RANGING MODULATIONS, AND THE EFFECTS OF MULTIPATH REFLECTIONS OFF THE SEA AND THE SHIP SUPER STRUCTURE. SAFETY DEMONSTRATION EXPERIMENTS WERE CONDUCTED AND ARE EXPECTED TO AID IN EVALUATING THE EFFECTIVENESS OF SATELLITE COMMUNICATIONS IN MARITIME SAFETY-OF-LIFE-AT-SEA APPLICATIONS. IN THESE TESTS, THE SATELLITE TO SHIP LINK WAS USED IN A TYPICAL SEARCH AND RESCUE INCIDENT ALONG WITH AN EMERGENCY POSITION INDICATING RADIO BEACON (EPIRB) BUOY WHICH INITIATED THE DISTRESS ALERT.

SUBJECT: DATA TRANSMISSION MARITIME TRAFFIC CONTROL VOICE COMMUNICATIONS  
RADIO TRANSMISSION

KEYWORDS: ATS-6; GROUND-AIR-GROUND COMMUNICATIONS; SAFETY FACTORS; RADIO TRANSMISSION; ANTENNA DESIGN; MODEMS  
; RESCUE OPERATIONS

JOURNAL TITLE: EASCON 1975

DATE OF DOCUMENT/TYPE: JULY 1977 / JOURNAL ARTICLE  
 TITLE OF DOCUMENT: SAILBOAT SEARCH AND RESCUE EXPERIMENT  
 AUTHOR: BAKER, J. L.  
 SATELLITE: ATS-3  
 OBJECT OF EXPERIMENT: TO EVALUATE SATELLITE SEARCH AND RESCUE CONCEPT

ABSTRACT: AN EXPERIMENT TO EVALUATE ONE SATELLITE SEARCH AND RESCUE CONCEPT WAS CONDUCTED FOR ONE MONTH AROUND THE ISLANDS OF BAHAMA, ABOARD A 33-FT SAILBOAT. THE SAILBOAT WAS EQUIPPED WITH SATELLITE DATA COLLECTION EQUIPMENT WHICH PROVIDED VESSEL COMMUNICATION WITH AN EARTH STATION BY MEANS OF A SIMPLE PUSH-BUTTON DISTRESS ALARM KEYS. THIS LOW-POWER EQUIPMENT TRANSMITTED BOAT IDENTIFICATION, WEATHER DATA, LOCATION, AND SIMULATED OTHER VITAL DISTRESS INFORMATION AND REQUIRED EMERGENCY ASSISTANCE BY MEANS OF THE NASA NIKEUS 6 DATA COLLECTION SATELLITE AT UHF. IN ADDITION, THE EXPERIMENT EVALUATED THE MINUS DOPPLER POSITIONING TECHNIQUE FOR DISTRESS APPLICATION BY PROVIDING 11% POSITION DERIVED FROM THE SATELLITE, AND 75 PERCENT OF THESE WERE WITHIN 2 NMI OF ACTUAL LOCATIONS. EXPERIMENT COORDINATION WAS ACCOMPLISHED BY VOICE LINK THROUGH ATS-3.

THE EXPERIMENT DEMONSTRATED THE POTENTIAL ABILITY OF SATELLITE SYSTEMS TO PROVIDE RELIABLE DISTRESS ALERT AND POSITION.

SUBJECT: SEARCH AND RESCUE  
 KEYWORDS: ATS-3; SEARCH AND RESCUE; SAILBOAT; UHF  
 JOURNAL TITLE: IEEE JOURNAL OF OCEANIC ENGINEERING, VOLUME 3, PAGES 285-91

UNIVERSITY OF DAYTON ACCESS NUMBER: 684

DATE OF DOCUMENT/TYPE: MAY 1977 / INFORMATION FROM FINAL REPORT  
 TITLE OF DOCUMENT: MARITIME COMMUNICATION EXPERIMENTS AND SEARCH-AND-RESCUE EVALUATIONS WITH THE NASA ATS-6 SATELLITE. VOLUME 1 - SUMMARY  
 AUTHOR: UNKNOWN  
 SATELLITE: ATS-6  
 OBJECT OF EXPERIMENT: TECHNICAL DATA ACQUISITION, SYSTEM DEMONSTRATION, AND THE EVALUATION OF POTENTIAL OPERATIONAL BENEFITS

ABSTRACT: THE ACCOMPLISHMENTS OF THE ATS-6 EXPERIMENTS ARE STATED AS FOLLOWS: (1) ACQUIRED TECHNICAL DATA ESSENTIAL TO THE DESIGN OF SATELLITE COMMUNICATIONS SYSTEMS FOR MARINE APPLICATIONS; (2) TESTED AND RATED COMPONENTS OF POTENTIAL NEW USER ELECTRONICS OPERATING AT L-BAND (1600 MHZ) SUITABLE FOR MARITIME SERVICES; (3) THE EXPERIMENTS VALIDATED THE APPLICABILITY OF LABORATORY SIMULATION OF PROPAGATION PHENOMENA; (4) THE ADVANTAGES OF A COORDINATED USCG AND FAA EFFORT USING SATELLITES TO INTERCONNECT WIDELY DISPERSED AIRCRAFT AND SHIPS IN A SEARCH AND RESCUE OPERATION WERE CLEARLY DEMONSTRATED.

SUBJECT: SEARCH AND RESCUE  
 KEYWORDS: ATS-6; MARITIME TRAFFIC; SEARCH AND RESCUE; L-BAND

UNIVERSITY OF DAYTON ACCESS NUMBER: 695

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DATE OF DOCUMENT/TYPE: APRIL 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: AIR TRAFFIC CONTROL EXPERIMENTATION AND EVALUATION WITH THE NASA ATS-6 SATELLITE - VOLUME 2

AUTHOR: JEFFERSON, F. W.

SPONSORING AGENCY: U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, SYSTEMS RESEARCH AND DEVELOPMENT SERVICE, WASHINGTON, D.C. 20590

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE AND EVALUATE BASIC CAPABILITIES AND CONCEPTUAL METHODS OF OPERATION PERTAINING TO THE INTRODUCTION OF SATELLITE IN THE OCEANIC AIR TRAFFIC CONTROL (ATC) ENVIRONMENT.

ABSTRACT: DEMONSTRATIONS OF SATELLITE-SUPPORTED COMMUNICATIONS FOR APPLICATION TO OCEANIC AIR TRAFFIC CONTROL (ATC) WERE CONDUCTED AS PART OF AN INTERNATIONAL ATS-6 L-BAND SATELLITE TEST PROGRAM. THE ATC DEMONSTRATIONS WERE COMPOSED OF TWO PHASES: DEMONSTRATIONS CONDUCTED SOLELY FOR UNITED STATES (U.S.) DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION PURPOSES AND DEMONSTRATIONS CONDUCTED AS A JOINT EFFORT BETWEEN U.S., EUROPEAN SPACE AGENCY (ESA), AND CANADA.

VOICE, DATA, AND DEPENDENT SURVEILLANCE COMMUNICATIONS BETWEEN AIR TRAFFIC CONTROLLERS AT A GROUND TERMINAL AND PSEUDOPILOTS IN TWO AIRBORNE AIRCRAFT, FAA KC135 AND ESA COMET 4, WERE PERFORMED VIA THE ATS-6 SATELLITE AND MCSMAN GROUND STATION. A SIMULATED AIRCRAFT TERMINAL LOCATED AT POSPAH WAS ALSO EMPLOYED. EACH TERMINAL PROVIDED UP TO SIX SIMULATED DATA LINK AIRCRAFT, THROUGH COMPUTED SOFTWARE, FOR TRAFFIC LOADING PURPOSES. CANADA PROVIDED A VOICE-ONLY SIMULATED AIRCRAFT TERMINAL LOCATED IN OTTAWA. VOICE AND DATA SCENARIOS WERE USED TO CREATE SIMULATED AIR TRAFFIC. RESULTS WERE: DEPENDENT ATC SURVEILLANCE WAS DEMONSTRATED THROUGH DATA LINK AUTOMATIC AIRCRAFT POSITION REPORTS; POSITION DATA WERE OBTAINED FROM AN INERTIAL NAVIGATION SYSTEM IN THE KC135 AND AN OMEGA NAVIGATION SYSTEM IN THE COMET; AND TO A LIMITED EXTENT, INDEPENDENT SURVEILLANCE WAS DEMONSTRATED USING THE NASA PLAGE SYSTEM AND THE ATS-6 AND ATS-5 SATELLITES.

SUBJECT: AIR TRAFFIC CONTROL VOICE COMMUNICATIONS

KEYWORDS: AIR TRAFFIC CONTROL; AEROSAT; ATS-6; L-BAND; PLAGE; VOICE COMMUNICATIONS; DATA COMMUNICATIONS; SURVEILLANCE

TECHNICAL REPORT NUMBER: FAA-RD-75-173-2 UNIVERSITY OF DAYTON ACCESS NUMBER: 606

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DATE OF DOCUMENT/TYPE: SEPTEMBER 1976 / TECHNICAL REPORT

TITLE OF DOCUMENT: AIR TRAFFIC CONTROL EXPERIMENTATION AND EVALUATION WITH THE NASA ATS-6 SATELLITE - VOLUME 3.

AUTHOR: SCHROEDER, E. M.; SUTTON, R. W.; THOMPSON, A. D.; WILSON, S. G.; KUO, C. J.

SPONSORING AGENCY: U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, SYSTEMS RESEARCH AND DEVELOPMENT  
T SERVICE, WASHINGTON, D.C. 20591

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO COLLECT SATELLITE-AIRCRAFT SIGNAL PROPAGATION DATA, EVALUATE L-BAND AVIONICS HARDWARE DESIGNS, AND PERFORM PRELIMINARY SATELLITE VOICE AND DATA COMMUNICATIONS DEMONSTRATION TESTS.

ABSTRACT:

THE U.S. DEPARTMENT OF TRANSPORTATION (DOT) PROGRAM FOR AIR TRAFFIC CONTROL (ATC) EXPERIMENTATION AND EVALUATION WITH THE ATS-6 SATELLITE WAS PART OF THE INTEGRATED ATS-6 L-BAND EXPERIMENT. THE OVERALL EXPERIMENT WAS COORDINATED BY THE NASA/GODDARD SPACE FLIGHT CENTER AND WAS INTERNATIONAL IN SCOPE, INVOLVING SEVERAL PARTICIPANTS. ALL TESTS WERE PERFORMED BETWEEN SEPTEMBER 1974 AND APRIL 1975. THE U.S. DOT AERONAUTICAL PROGRAM CONSISTED OF BOTH ATC COMMUNICATIONS DEMONSTRATION AND TECHNOLOGY TESTS. TESTS WERE IN SUPPORT OF THE AERONAUTICAL SATELLITE (AEROSAT) PROGRAM TO COLLECT SATELLITE-AIRCRAFT SIGNAL PROPAGATION DATA, EVALUATE L-BAND AVIONICS HARDWARE DESIGNS, AND PERFORM PRELIMINARY SATELLITE VOICE AND DATA COMMUNICATIONS DEMONSTRATION TESTS. ALL TESTS WERE CONDUCTED BETWEEN THE FAA KC-135 AIRCRAFT AND THE NASA-FOSMAN GROUND STATION VIA THE GEOSTATIONARY ATS-6 SATELLITE. THIS REPORT PRESENTS DATA ON THE U.S. AERONAUTICAL TECHNOLOGY TESTS.

THE TECHNOLOGY TESTS WERE COMPOSED OF MULTIPATH CHANNEL CHARACTERIZATION TESTS: MODEM TESTS OF VOICE, DATA AND RANGING; AND AIRCRAFT ANTENNA TESTS. MULTIPATH RESULTS INCLUDE DELAY-DOPPLER SCATTER FUNCTION CHARACTERISTICS AND CALCULATIONS OF SPECTRA, SPREADS, AND AUTOCORRELATIONS FOR BOTH OF OFF-OCEAN AND CONUS MULTIPATH. COMPARISONS OF SAMPLE RESULTS WITH MODEL PREDICTION ARE GIVEN. VOICE MODEM INTELLIGIBILITY SCORES, DIGITAL DATA BIT-ERROR RATES AND RANGING MODEM PERFORMANCE ARE PRESENTED PARAMETRICALLY AS FUNCTIONS OF C/N/SUB AND S/N. EXPERIMENTALLY DERIVED GAIN AND MULTIPATH REJECTION PERFORMANCE DATA ARE GIVEN FOR THE SLOT-DIPOLE, PHASED-ARRAY AND PATCH ANTENNAS FOR VARIOUS AIRCRAFT/SATELLITE GEOMETRIES.

THE REPORT CONSISTS OF SEVEN VOLUMES: 1 - EXECUTIVE SUMMARY; 2 - DEMONSTRATION OF SATELLITE-SUPPORTED COMMUNICATIONS AND SURVEILLANCE FOR OCEANIC AIR TRAFFIC CONTROL; 3 - SUMMARY OF U.S. AERONAUTICAL TECHNOLOGY TEST PROGRAM; 4 - DATA REDUCTIONS AND ANALYSIS SOFTWARE; 5 - MULTIPATH CHANNEL CHARACTERIZATION TEST; 6 - MODEM EVALUATION TEST; 7 - AIRCRAFT ANTENNA EVALUATION TEST.

SUBJECT: AIR TRAFFIC CONTROL VOICE COMMUNICATIONS

KEYWORDS: ATS-6; AEROSAT; MULTIPATH; DELAY-DOPPLER SCATTER FUNCTION; MODEM EVALUATION; VOICE INTELLIGIBILITY; L-BAND; SLOT DIPOLES; PHASED ARRAY; ANTENNAS; BIT-ERROR RATES; RANGING

UNIVERSITY OF DAYTON ACCESS NUMBER: 607

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DATE OF DOCUMENT/TYPE: 30 SEPTEMBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: ALASKA EDUCATION EXPERIMENT. VOLUME 2, APPENDICES A THROUGH E.

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: COLLECTION OF DOCUMENTS WHICH FURTHER ELUCIDATE THE PLANNING AND CONSTRUCTION OF THE COMMUNICATIONS FACILITY.

ABSTRACT: THIS IS THE SECOND VOLUME OF THE THREE VOLUME FINAL REPORT FOR THE HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT. THIS APPENDIX IS A COLLECTION OF DOCUMENTS WHICH FURTHER ELUCIDATE THE PLANNING AND CONSTRUCTION OF THE COMMUNICATIONS FACILITY. IT INCLUDES A CHRONOLOGY OF FUNDING AND CONTRACTING EVENTS, AND COPIES OF THE ACTUAL GRANTS AND CONTRACTS THAT MADE THE EXPERIMENT POSSIBLE.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS TELEVISION

KEYWORDS: ATS-6; TELECOMMUNICATIONS; ALASKA; COMMUNITY ROLE; CULTURAL DIFFERENCES; EDUCATIONAL TELEVISION; RURAL EDUCATION; EDUCATIONAL FACILITIES; HEALTH EDUCATION; STATE PROGRAMS

UNIVERSITY OF DAYTON ACCESS NUMBER: 688

DATE OF DOCUMENT/TYPE: 30 SEPTEMBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: ALASKA EDUCATION EXPERIMENT. VOLUME 3, APPENDICES F THROUGH J.

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION (DHEW), WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: INCLUDES COMMUNICATIONS BETWEEN CONTRACTOR, THE OFFICE OF THE GOVERNOR OF ALASKA, AND THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE IN WASHINGTON, D.C.

ABSTRACT: THIS IS THE THIRD VOLUME OF A THREE VOLUME FINAL REPORT FOR THE HEALTH/EDUCATION TELECOMMUNICATIONS EXPERIMENT. THIS VOLUME IS A CONTINUATION OF THE APPENDIX, AND IT INCLUDES COMMUNICATIONS THAT TOOK PLACE BETWEEN THE CONTRACTOR, THE OFFICE OF THE GOVERNOR OF ALASKA, AND THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE IN WASHINGTON, D.C. THE COMMUNICATIONS DOCUMENT THE OBJECTIVES OF THE PROGRAM AND THE COMPLETION DATES FOR BOTH THE FACILITY CONSTRUCTION AND THE DEVELOPMENT OF THE INSTRUCTIONAL PROGRAMS TO BE BROADCAST.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS TELEVISION

KEYWORDS: ATS-6; TELECOMMUNICATIONS; ALASKA; COMMUNITY ROLE; CULTURAL DIFFERENCES; EDUCATIONAL RADIO; EDUCATIONAL TELEVISION; HEALTH EDUCATION; RURAL EDUCATION; STATE PROGRAMS

UNIVERSITY OF DAYTON ACCESS NUMBER: 689

DATE OF DOCUMENT/TYPE: FEBRUARY 1977 / TECHNICAL REPORT

TITLE OF DOCUMENT: A SYNTHESIS OF THE FINAL REPORTS AND EVALUATIONS OF THE ATS-6 SATELLITE EXPERIMENTS IN HEALTH, EDUCATION, AND TELECOMMUNICATIONS.

AUTHOR: FILEP, R. T.; JLMANSEN, P. A.

SPONSORING AGENCY: AGENCY FOR INTERNATIONAL DEVELOPMENT OF THE UNITED STATES DEPARTMENT OF STATE

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO OUTLINE THE OBJECTIVES, PROCEDURES, INSTRUCTIONAL OR MEDICAL CONTENT, AND THE OVERALL RESULTS OF THE ATS-6 HEALTH, EDUCATION AND TELECOMMUNICATION EXPERIMENTS.

ABSTRACT: THIS DOCUMENT PROVIDES A SYNTHESIS OF THE FINAL PROJECT REPORTS AND PROJECT EVALUATIONS OF A SERIES OF HEALTH AND EDUCATION SATELLITE EXPERIMENTS. THESE ACTIVITIES WERE DESIGNED TO EXPLORE THE USE OF SATELLITE TECHNOLOGY IN THE DELIVERY OF SOCIAL SERVICES. EACH SUMMARY IN THIS PAPER OUTLINES THE OBJECTIVES, PROCEDURES, INSTRUCTIONAL OR MEDICAL CONTENT, AND THE OVERALL RESULTS OF THE PROJECT. THE REVIEW OF THE EXTERNAL EVALUATION PROVIDES INFORMATION REGARDING AREAS ASSESSED, SUCH AS ACHIEVEMENT, AND ATTITUDE TOWARD THE APPROACH BY THE USERS. COMMENTARY IS ALSO PROVIDED REGARDING ASPECTS OF THE EXPERIMENTS AND EVALUATIONS. AN OVERVIEW SECTION ANALYZES THE VALUE OF THE EXPERIMENTS AS A GROUP, WITH SPECIAL ATTENTION TO THEIR ROLE AS PRECURSORS OF A NUMBER OF ACTIVITIES STARTED IN ORDER TO EXPLOIT SATELLITES IN THE DELIVERY OF SOCIAL SERVICES. GEOGRAPHIC AREAS COVERED INCLUDE THE EASTERN EXPERIMENTS IN THE APPALACHIA REGION OF THE COUNTRY THAT INVOLVED EDUCATION AND VETERANS ADMINISTRATION APPLICATIONS. THE EXPERIMENT IN THE ROCKY MOUNTAIN REGION FOCUSED ON EDUCATION, THE NORTHWESTERN REGION ON MEDICAL ENDEAVORS, AND THE ALASKA PROJECTS ON BOTH MEDICINE AND EDUCATION. ATTENTION TO TECHNICAL EQUIPMENT OPERATION AND PERFORMANCE, AND TO COST FACTORS, IS NOT THE CONCERN OF THIS REPORT. THESE DATA ARE REVIEWED IN OTHER AID DOCUMENTS. A BIBLIOGRAPHY OF THE MAJOR FINAL REPORTS AND EVALUATION STUDIES IS PROVIDED.

SUBJECT: BROADCASTING DATA TRANSMISSION EDUCATIONAL APPLICATIONS  
MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; HEALTH/EDUCATION TELECOMMUNICATIONS; APPALACHIA REGION; VETERANS ADMINISTRATION; ROCKY MOUNTAIN REGION; ALASKA; VOICE COMMUNICATIONS; VIDEO COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 696

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DATE OF DOCUMENT/TYPE: JULY 1970 / RESEARCH PAPER

TITLE OF DOCUMENT: LUBBOCK TORNADOES OF 11 MAY 1970

AUTHOR: FUJITA, T.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO DESCRIBE FREQUENCY OF TORNADO OCCURRENCES AROUND LUBBOCK, AMARILLO AND THE AREA BETWEEN THE TWO CITIES

ABSTRACT: AFTER 70 YEARS OF IMPUNITY, LUBBOCK, TEXAS, A CITY OF 170,000, WAS HIT BY TWO TORNADOES ON 11 MAY 1970: A SMALL ONE AT ABOUT 8:45 PM CDT AND A GIANT ONE AROUND 9:45 PM CDT. THE LATTER ONE LEFT A PATH OF DEVASTATING DAMAGE BETWEEN THE DOWNTOWN AREA AND LUBBOCK MUNICIPAL AIRPORT. ACCORDING TO THE LATEST STATISTICS OF SEVERE LOCAL STORM OCCURRENCES BY ESSA (1969), THERE HAVE BEEN 49 VERIFIED TORNADO OCCURRENCES IN THE 1 DEGREE SQUARE AROUND LUBBOCK IN THE 13-YEAR PERIOD 1955-1967 AND 54 IN THE 1 DEGREE SQUARE AROUND AMARILLO. THE AREA BETWEEN THESE TWO CITIES REPORTED A MUCH GREATER FREQUENCY OF TORNADO OCCURRENCES.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; SPACEBORNE PHOTOGRAPHY; LUBBOCK (TEXAS); TORNADOES; VORTICES; METEOROLOGICAL RADAR; ATMOSPHERIC TEMPERATURE; UEN POINT

UNIVERSITY OF DAYTON ACCESS NUMBER: 691

DATE OF DOCUMENT/TYPE: APRIL 1972 / PROGRESS REPORT

TITLE OF DOCUMENT: SAGI PROJECT PROGRESS REVIEW MEETING

AUTHOR: UNKNOWN

SATELLITE: ATS-3; ATS-6

OBJECT OF EXPERIMENT: TO BROADCAST EDUCATIONAL PROGRAMS

ABSTRACT: RESULTS ARE PRESENTED OF A CONFERENCE CONDUCTED ON THE PROGRAMS, GOALS, AND PLANS FOR THE SAGI PROJECT. THE THREE PHASES OF THE PROJECT DISCUSSED WERE: (1) STANFORD UNIVERSITY LINK VIA ATS-3 FOR SEMINARS, LECTURES, CLASSES, ETC.; (2) BROADCASTING EDUCATIONAL PROGRAMS THROUGH AUDIOVISUAL MEDIA TO 500 SCHOOLS IN RIO GRANDE DO NORTE STATE UTILIZING ATS-F SATELLITE TO BE LAUNCHED IN 1973; AND (3) NATIONWIDE BROADCASTING THROUGH A BRAZILIAN SATELLITE.

SUBJECT: BROADCASTING EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-3; ATS-6; CONFERENCES; EDUCATION; BROADCASTING; GROUND SUPPORT EQUIPMENT; SCHEDULING; TRANSMITTER RECEIVERS

UNIVERSITY OF DAYTON ACCESS NUMBER: 692

DATE OF DOCUMENT/TYPE: 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE FORMATIVE PROCESS USED BY THE SATELLITE TECHNOLOGY DEMONSTRATION IN THE DEVELOPMENT OF TELEVISION PROGRAMMING FOR JUNIOR HIGH SCHOOL STUDENTS. SATELLITE TECHNOLOGY DEMONSTRATION, TECHNICAL REPORT NO. 8218.

AUTHOR: CONNOLLY, A. J.; DALE, J. B.; MCWILLIAMS JR., A. E.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W., WASHINGTON, D.C. 20260

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO CREATE A PLANNING OR FORMATIVE PROCESS IN THE CREATION OF AN EDUCATIONAL TELEVISION SERIES

ABSTRACT: THE SATELLITE TECHNOLOGY DEMONSTRATION (STD) CREATED A PLANNING OR FORMATIVE PROCESS IN THE CREATION OF AN EDUCATIONAL TELEVISION SERIES. THE STD RECOMMENDATIONS WERE: (1) DEFINE THE PROCESS, IN-DEPTH, BEFORE DEVELOPING THE PROCESS; (2) MAKE CERTAIN THE PROCESS CAN ADAPT TO UNFORSEEN DEVELOPMENTS; (3) TEST THE PROCESS BY CONVERTING EARLY SCRIPTS INTO VIDEO PRODUCTS FOR SCRIPT REVIEW; (4) ANALYZE THE PROCEDURES; AND (5) VERIFY THE RESULTS. THIS DOCUMENT DETAILS THE USE OF THIS FORMATIVE PROCESS ON THE DEVELOPMENT OF "TUNE OUT" -- A CAREER EDUCATION SERIES DESIGNED FOR JUNIOR HIGH SCHOOL STUDENTS AND TRANSMITTED BY COMMUNICATION SATELLITE.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: CAREER EDUCATION; ATS-6; EDUCATIONAL TELEVISION; TELECOMMUNICATION; EDUCATIONAL PLANNING; PROGRAM EVALUATION; SATELLITE TECHNOLOGY DEMONSTRATION (STD)

UNIVERSITY OF DAYTON ACCESS NUMBER: 693

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DATE OF DOCUMENT/TYPE: JUNE 1975 / PAPER

TITLE OF DOCUMENT: APPLICATION OF EARTH RESOURCES TECHNOLOGY TO HUMAN NEEDS

AUTHOR: WEINBERGER, C.

SPONSORING AGENCY: DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, WASHINGTON, D.C.

SATELLITE: ATS-3

OBJECT OF EXPERIMENT: TO EXAMINE THE APPLICATIONS OF REMOTE SENSING TECHNOLOGY IN THE FIELDS OF HEALTH AND EDUCATION

ABSTRACT: THE APPLICATION OF REMOTE SENSING TECHNOLOGY IN THE FIELDS OF HEALTH AND EDUCATION IS EXAMINED. THE TECHNOLOGY AND ACCOMPLISHMENTS OF ATS-6 AND THE DEVELOPMENT OF A NATIONWIDE TELECOMMUNICATIONS SYSTEM TO MEET THE VARIED NEEDS OF THE HEALTH AND EDUCATION COMMUNITIES ARE AMONG THE TOPICS DISCUSSED. THE ECONOMIC AND SOCIAL ASPECTS OF UTILIZING AND BENEFITING FROM REMOTE SENSING TECHNOLOGY ARE STRESSED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: EARTH RESOURCES PROGRAM; NET EXPERIMENT; REMOTE SENSORS; TECHNOLOGY UTILIZATION; ATS-6; ECONOMIC FACTORS; EDUCATION; HEALTH; SOCIAL FACTORS

UNIVERSITY OF DAYTON ACCESS NUMBER: 694

DATE OF DOCUMENT/TYPE: AUGUST 1974 / TECHNICAL REPORT

TITLE OF DOCUMENT: TELEMEDICINE: THE ASSESSMENT OF AN EVOLVING HEALTH CARE TECHNOLOGY

AUTHOR: REICH, J. J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DESCRIBE TELEMEDICINE, ASSEMBLE AND ANALYZE INFORMATION ON ITS CURRENT AND FUTURE USE, AND TO ASSESS WHAT ITS POTENTIAL EFFECTS, BOTH POSITIVE AND NEGATIVE, MAY BE.

ABSTRACT: TELEMEDICINE, THE USE OF BI-DIRECTIONAL TELECOMMUNICATIONS SYSTEMS FOR THE DELIVERY OF HEALTH CARE AT A DISTANCE, IS CONSIDERED FROM MEDICAL, TECHNICAL, LEGAL, SOCIOLOGICAL, AND PSYCHOLOGICAL PERSPECTIVES. THE CURRENT STATUS OF TELEMEDICINE ALONG WITH TRENDS AND ISSUES ARE ANALYZED. POTENTIAL FUTURE IMPACTS OF TELEMEDICINE ARE IDENTIFIED ALONG WITH RECOMMENDATIONS FOR FUTURE RESEARCH ACTIVITY AND REGULATION IN THIS FIELD.

SUBJECT: MEDICAL/HEALTH APPLICATIONS VOICE COMMUNICATIONS VIDEO COMMUNICATIONS

KEYWORDS: ATS-6; TELEMEDICINE; VOICE COMMUNICATIONS; VIDEO COMMUNICATIONS; TELEDIAGNOSIS SYSTEMS; TELECOMMUNICATIONS; HEALTH CARE

UNIVERSITY OF DAYTON ACCESS NUMBER: 695

DATE OF DOCUMENT/TYPE: MARCH 1968 / PAPER

TITLE OF DOCUMENT: A MILLIMETER WAVE PROPAGATION EXPERIMENT FROM THE ATS-E SPACECRAFT

AUTHOR: DEES, J.W.; KING, J. L.; WILSE, J. C.

SPONSORING AGENCY: NASA, GODDARD SPACE FLIGHT CENTER, GREENBELT, MARYLAND

SATELLITE: ATS

OBJECT OF EXPERIMENT: TO OBTAIN PROPAGATION DATA AT VARIED GROUND LOCATION FOR A WIDE VARIETY OF WEATHER CONDITIONS

ABSTRACT: INSTRUMENTATION IS DESCRIBED WHICH WILL BE USED FOR PERFORMING A MILLIMETER WAVE PROPAGATION EXPERIMENT FROM THE FIFTH APPLICATIONS TECHNOLOGY SATELLITE (ATS-E). WIDEBAND SIGNALS NEAR 15.3 AND 31.65 GHz WILL BE TRANSMITTED BETWEEN THE SPACECRAFT AND SEVERAL GROUND STATIONS, AND ATTENUATION AND PHASE DISTORTION EFFECTS CAUSED BY THE ATMOSPHERE AND METEOROLOGICAL PHENOMENA (INCLUDING RAINFALL) WILL BE MEASURED AT THE RECEIVING TERMINALS. THE OVERALL OBJECTIVE IS TO OBTAIN PROPAGATION DATA AT VARIED GROUND LOCATIONS FOR A WIDE VARIETY OF WEATHER CONDITIONS, INCLUDING SEASONAL VARIATIONS. THE 15.3 GHz SPACECRAFT SIGNAL IS TO BE PROVIDED BY A VERY STABLE SOLID STATE SOURCE WHICH WILL PRODUCE A TOTAL OUTPUT POWER OF APPROXIMATELY 200 MILLIWATTS AND WHICH CAN BE PHASE MODULATED AT A RATE OF 0.1, 1, 10, OR 50 MHz, PRODUCING A CARRIER AND TWO SIGNIFICANT SIDEBANDS NEARLY EQUAL IN LEVEL TO THE CARRIER. THE 31.65 GHz GROUND TRANSMITTERS WILL PROVIDE 100 TO 200 WATTS OUTPUT AND WILL BE CAPABLE OF BEING MODULATED AT 1, 10, OR 50 MHz TO PROVIDE TWO SIGNIFICANT SIDEBANDS IN ADDITION TO THE CARRIER.

SUBJECT: METEOROLOGY MILLIMETER WAVE RADIO TRANSMISSION

KEYWORDS: ATS; MILLIMETER WAVES; ATMOSPHERIC ATTENUATION; WEATHER; RADIO TRANSMITTERS

JOURNAL TITLE: IEEE CONFERENCE

UNIVERSITY OF CALIFORNIA ACCESS NUMBER: 696

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DATE OF DOCUMENT/TYPE: MAY 1968 / JOURNAL ARTICLE

TITLE OF DOCUMENT: WINTER CLOUD DISTRIBUTION OVER THE PACIFIC OCEAN ON THE BASIS OF AN ANALYSIS OF ATS PHOTOGRAPHS

AUTHOR: TSUCHIYA, K.; MATANABE

SATELLITE: ATS

OBJECT OF EXPERIMENT: TO DETERMINE THE DISTRIBUTION OF WINTER CLOUDS OVER THE PACIFIC OCEAN

ABSTRACT: ON THE BASIS OF AN ANALYSIS OF ATS PHOTOGRAPHS COVERING THE ENTIRE PACIFIC OCEAN, THE FOLLOWING CHARACTERISTICS ARE EVIDENT IN THE WIDE SCALE DISTRIBUTION OF PACIFIC OCEAN CLOUD COVER DURING THE MONTHS OF DECEMBER AND JANUARY: (1) THERE ARE FEW CLOUDS ALONG THE EQUATOR EAST OF 150 DEGREES EAST. ON BOTH SIDES OF THE EQUATOR THERE ARE LARGE CLOUD BANDS OR CLOUD REGIONS WHICH EXTEND TO THE EAST AND WEST. THOSE TO THE NORTH OF THE EQUATOR ARE THICK AND WIDE, WHILE THOSE TO THE SOUTH OF THE EQUATOR ARE DIVIDED BY A LARGE NUMBER OF INTERVALS. TO THE WEST OF 150 DEGREES EAST, THE NORTH-ERN CLOUD BAND GRADUALLY DRIPS TOWARDS THE SOUTH AND FUSES WITH THE CLOUDS IN THE SOUTHERN HEMISPHERE. (2) THERE ARE A LARGE NUMBER OF CLOUDS IN THE HIGHS WHICH CENTER IN THE VICINITY OF 35 DEGREES NORTH, 140 DEGREES WEST, WEST OF AMERICA. (3) THERE ARE FEW CLOUDS BELOW THE AXIS OF THE HIGH PRESSURE BELT IN THE MEDIUM LATITUDES IN A 500 MB WEATHER MAP. (4) THE AXIS OF THE JET STREAM ON THE 200 MB SURFACE IS ALONG THE NORTHERN EDGE OF THE CLOUD BAND ALONG THE POLAR FRONT. THE CLOUD BAND WHICH PARALLELS THE JET STREAM IS NARROW WHERE THE CLOUDS ARE CLOSE-KNIT AND WIDE WHERE THEY ARE DISPERSED. (5) THE LINE ALONG WHICH THE RELATIVE VORTICITY AT 500 MB IS 0 NEARLY COINCIDES WITH THE LINE ALONG THE POLAR FRONT. (6) THERE IS A CLOUD BAND EXTENDING EAST AND WEST TO THE EAST OF 170 DEGREES WEST WITHIN THE SOUTHERN HEMISPHERE. THE INTERVALS BETWEEN THE BANDS ARE GENERALLY NARROW WITHIN THE HIGHER LATITUDES BEING FOR THE MOST PART 300-400 KM SOUTH OF 30 DEGREES SOUTH, AND 900 KM NORTH OF THAT LINE.

SUBJECT: METEOROLOGY

KEYWORDS: ATS; CLOUDS; WEATHER; PACIFIC OCEAN; METEOROLOGICAL CHARTS

JOURNAL TITLE: TENKI, VOLUME 11, ISSUE 5, PAGES 189-195

UNIVERSITY OF DAYTON ACCESS NUMBER: 697

DATE OF DOCUMENT/TYPE: DECEMBER 1972 / PROGRESS REPORT  
TITLE OF DOCUMENT: STUDY OF EQUATORIAL SCINTILLATION  
AUTHOR: POMALAZA, J.; WOODMAN, R.; TISNADD, G.; NAKASONE, E.  
SATELLITE: ATS-1; ATS-3; ATS-5

OBJECT OF EXPERIMENT: TO CORRELATE BETWEEN SATELLITE AND INCOHERENT RADAR OBSERVATIONS OF SCINTILLATIONS

ABSTRACT: OBSERVATIONS OF THE AMPLITUDE SCINTILLATIONS PRODUCED BY THE F-REGION IN EQUATORIAL AREAS ARE PRESENTED. THE EQUIPMENT USED FOR CONDUCTING THE OBSERVATIONS IS DESCRIBED. THE USE OF TRANSMISSIONS FROM THE ATS-1, ATS-3, AND ATS-5 FOR OBTAINING DATA IS DESCRIBED. THE TWO PRINCIPAL SUBJECTS DISCLOSED ARE: (1) CORRELATION BETWEEN SATELLITE AND INCOHERENT RADAR OBSERVATIONS OF SCINTILLATIONS AND (2) SIMULTANEOUS OBSERVATIONS OF SCINTILLATIONS AT 136 MHZ AND 2554 MHZ.

SUBJECT: METEOROLOGY

KEYWORDS: ATS-3; ATS-1; ATS-5; UPPER ATMOSPHERE; TROPICAL REGIONS; EQUATORS

UNIVERSITY OF DAYTON ACCESS NUMBER: 698

DATE OF DOCUMENT/TYPE: 1972 / TECHNICAL REPORT  
TITLE OF DOCUMENT: ATS-5 MILLIMETER WAVE EXPERIMENTS  
AUTHOR: STRAITON, A.  
SPONSORING AGENCY: NASA, GODDARD FLIGHT SPACE CENTER, GREENBELT, MARYLAND  
SATELLITE: ATS-5

ABSTRACT: THE 15.3 GHZ TRANSMISSIONS WERE OBSERVED AT AUSTIN, TEXAS OVER AN EIGHTEEN MONTH INTERVAL PRIMARILY DURING PERIODS OF RAIN. MEASUREMENTS WERE ALSO MADE AT MOUNT LOCKE, NEAR FORT DAVIS, TEXAS BUT ONLY FOR A PERIOD OF TWO MONTHS. ESSENTIALLY CONTINUOUS MEASUREMENTS WERE MADE AT AUSTIN, TEXAS OF THE SKY TEMPERATURE AT 35 GHZ LOOKING IN THE DIRECTION OF THE ATS-5 SATELLITE OVER AN INTERVAL OF FOUR MONTHS. POINT-TO-POINT TRANSMISSIONS OVER THE EARTH'S SURFACE AT 15 AND 33 GHZ AND VARIOUS METEOROLOGICAL PARAMETERS WERE STUDIED AS POSSIBLE MEANS OF PREDICTING PERFORMANCE OVER A SATELLITE-EARTH PATH. THE BASIC FEATURES OF THE EXPERIMENTS AND THE PRIMARY RESULTS ARE PRESENTED IN THE FIRST SECTION WHICH IS INTENDED TO BE AN INDEPENDENT UNIT. MORE DETAILED DESCRIPTIONS ARE GIVEN IN THE SECOND SECTION WITH SUBSTANTIATING DATA FOR CONCLUSIONS STATED IN THE FIRST SECTION.

SUBJECT: MILLIMETER WAVE

KEYWORDS: ATS-5; MILLIMETER WAVES; WAVE PROPAGATION; METEOROLOGICAL PARAMETERS

UNIVERSITY OF DAYTON ACCESS NUMBER: 699

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DATE OF DOCUMENT/TYPE: OCT 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: PEACESAT PROJECT: EARLY EXPERIENCE

AUTHOR: BYSTROM, J.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TWO WAY COMMUNICATIONS VIA SATELLITE USING LOW COST TERMINALS

ABSTRACT: THIS REPORT SUMMARIZES PEACESAT OPERATIONS FROM ITS BEGINNING IN 1971 TO THE PRESENT. EMPHASIS IS PLACED ON CONCRETE EXPERIENCE AND ON THE BEHAVIOR OF THOSE WHO PARTICIPATED IN THE OPERATION OF THE SYSTEM.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: PEACESAT: SATELLITE: HAWAII: ATS-1: EDUCATION: FACSIMILE: NETWORK: ALOHA: MEDICAL: LIBRARY

TECHNICAL REPORT NUMBER: 1 UNIVERSITY OF DAYTON ACCESS NUMBER: 700

DATE OF DOCUMENT/TYPE: NOV 75 / TECHNICAL REPORT

TITLE OF DOCUMENT: PEACESAT PROJECT: NETWORKS

AUTHOR: BYSTROM, J. W.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TWO-WAY COMMUNICATIONS VIA SATELLITE USING LOW COST TERMINALS.

ABSTRACT: THIS REPORT IS A CONTINUATION OF THE SUMMARY OF THE PEACESAT PROJECT. INCLUDED ARE EXCERPTS FROM PAPERS THAT SUGGEST FUTURE NETWORK APPLICATIONS. EXCHANGES FROM EDUCATION, MEDICAL AND LIBRARY NETWORKS ARE INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: PEACESAT: SATELLITE: HAWAII: ATS-1: EDUCATION: NETWORK: MEDICAL: LIBRARY

TECHNICAL REPORT NUMBER: 2 UNIVERSITY OF DAYTON ACCESS NUMBER: 701

DATE OF DOCUMENT/TYPE: SEP 75 / NEWSPAPER ARTICLE

TITLE OF DOCUMENT: PEACESAT NEWS FILE 1976-1975

AUTHOR: BYSTRON, J. W.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TWO-WAY COMMUNICATIONS VIA SATELLITE/ USING LOW COST TERMINALS

ABSTRACT: THIS REPORT IS A COLLECTION OF NEWSPAPER ARTICLES ABOUT THE PEACESAT PROJECT. THE ARTICLES WERE CLIPPED FROM VARIOUS PAPERS. A CHRONOLOGY OF THE PEACESAT PROJECT FOR 1976-1975 IS INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: PEACESAT: SATELLITE: ATS-1: HAWAII: EDUCATION: MEDICAL: HEALTH: NETWORK

UNIVERSITY OF DAYTON ACCESS NUMBER: 782

DATE OF DOCUMENT/TYPE: 1977 / INFORMAL NOTES

TITLE OF DOCUMENT: PEACESAT FACT SHEET

AUTHOR: UNKNOWN

SATELLITE: ATS-1

ABSTRACT: FACTS ABOUT THE PEACESAT PROJECT ARE SUMMARIZED. BEGINNING DATE, COSTS, PERSONNEL, SYSTEMS FEATURES, AND TERRITORIAL LOCATION ARE INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: PEACESAT: ATS-1: HAWAII: SOUTH PACIFIC: EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 793

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DATE OF DOCUMENT/TYPE: 1975 / PAPER

TITLE OF DOCUMENT: A SATELLITE COMMUNICATION SYSTEM: GLOBAL DEVELOPMENT AND CULTURAL IMPERIALISM

AUTHOR: RYSTROM, J.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TWO-WAY COMMUNICATION VIA SATELLITE USING LOW-COST GROUND TERMINALS

ABSTRACT: THIS PAPER ARGUES THE URGENT NECESSITY FOR TESTING NEW METHODS OF INTERNATIONAL COMMUNICATIONS USING LOW-COST SATELLITE SYSTEMS AND SMALL FLEXIBLE GROUND TERMINALS. INADEQUATE TELECOMMUNICATION SERVICES ARE CRIPPLING WORLD DEVELOPMENT EFFORTS. LARGE INVESTMENTS ARE BEING MADE IN INTERNATIONAL DEVELOPMENT PROGRAMS WHOSE OPERATIONS ARE INFLEXIBLE. EFFORTS OF POOR NATIONS TO COMPETE IN THIS AREA IS HAMPSTUNG BY THE LACK OF LOW-COST EQUIPMENT.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: PEACESAT: ATS: TECHNOLOGY: SATELLITE: IMPERIALISM: CULTURE: COMMUNICATIONS: TELECOMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 784

DATE OF DOCUMENT/TYPE: 1975 / JOURNAL ARTICLE

TITLE OF DOCUMENT: SOME EARLY RESULTS FROM THE ATS-6 RADIO BEACON EXPERIMENT

AUTHOR: DAVIES, M.; FRITZ, F. B.; GRUBB, R. M.; JONES, J. E.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: MONITOR THE INTEGRATED ELECTRON CONTENT BETWEEN ATS-6 AND THE GROUND

ABSTRACT: THE MULTIFREQUENCY SATELLITE RADIO BEACON ENABLES THE MEASUREMENT OF THE COLUMNAR ELECTRON CONTENT OF THE IONOSPHERE AND PLASMASPHERE ALONG THE RAY PATH AND ITS SPATIAL AND TEMPORAL STRUCTURE. MEASUREMENTS INCLUDE MODULATION PHASE, FARADAY ROTATION, AND AMPLITUDE. THE CHARACTERISTICS OF THE BEACON TRANSMITTER AND ITS DESIGN ARE PRESENTED TOGETHER WITH THE DESIGN OF THE BOULDER RECEIVER AND ANTENNAS AND THE CALIBRATION PROCEDURES. A SHAPE FACTOR  $F$  IS DEFINED WHICH DEPENDS ON THE ELECTRON DENSITY AND GEOMAGNETIC FIELD DISTRIBUTIONS. IT IS FOUND THAT  $F$  VARIES BY ABOUT 30% FROM DAY TO NIGHT. IT IS SHOWN THAT THE RATIO OF THE PLASMASPHERIC CONTENT TO TOTAL CONTENT VARIES FROM ABOUT 0.60 DURING THE DAY TO ABOUT 0.35 AT NIGHT. OTHER EXAMPLES WHICH ARE PRESENTED TO ILLUSTRATE THE USES OF THE RADIO BEACON INCLUDE SUNRISE EFFECTS, SOLAR FLARE ENHANCEMENTS OF TOTAL CONTENT, AND THE IONOSPHERIC STORMS OF EARLY JULY 1974.

SUBJECT: ENVIRONMENT

KEYWORDS: ATS-6: RADIO: BEACON: SHAPE FACTOR: FARADAY ROTATION

JOURNAL TITLE: RADIO SCIENCE, VOLUME 10, ISSUE 8, PAGES 785-799

UNIVERSITY OF DAYTON ACCESS NUMBER: 785

DATE OF DOCUMENT/TITLE: DECEMBER 1976 / PROCEEDINGS  
TITLE OF DOCUMENT: PROCEEDINGS OF THE WORKSHOP ON RECON SATELLITE STUDIES  
AUTHOR: KANE, R. W.

SATELLITE: ATS-6

ABSTRACT: PAPERS AND PROCEEDINGS OF THE WORKSHOP ARE PRESENTED. THE WORKSHOP WAS HELD AFTER ATS-6 HAD BEEN OVER INDIA. INDIVIDUALS WHO HAD COLLECTED DATA AT VARIOUS LOCATIONS WERE BROUGHT TOGETHER TO COMPARE THEIR FINDINGS AND DISCUSS TECHNIQUES. THE WORKSHOP DEMONSTRATED THE NEED TO STANDARDIZE PROCEDURES.

SUBJECT: DATA COLLECTION

KEYWORDS: ATS-6; INDIA; RADIO; RECON; SATELLITE; IONOSPHERE; ELECTRONS; SCINTILLATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 786

DATE OF DOCUMENT/TITLE: 1976 / TECHNICAL REPORT  
TITLE OF DOCUMENT: TRANSPORTABLE TELECOMMUNICATIONS SYSTEM  
AUTHOR: CHAMBERLIN, W. P.; LESTER, R. W.

SATELLITE: CTS

OBJECT OF EXPERIMENT: EVALUATION OF THE DEGREE OF PORTABILITY ASSOCIATED WITH A REMOTE 1-METER ANTENNA GROUND STATION.

ABSTRACT: THIS REPORT DESCRIBES A TRANSPORTABLE TELECOMMUNICATIONS DEMONSTRATION THAT WAS A JOINT VENTURE OF BELL CANADA AND TELESAT CANADA. THIS DEMONSTRATION WAS CARRIED OUT AS A FIELD EVALUATION EXPERISE. REGULAR PLANT OPERATING PRACTICE WAS FOLLOWED AS MUCH AS POSSIBLE AND PLANT OPERATING PERSONNEL IN BOTH COMPANIES CARRIED OUT THE PROCEDURES IN ADDITION TO THEIR NORMAL DUTIES. THE 1-METER GROUND TERMINAL PROVED TO BE REASONABLY TRANSPORTABLE IN THE FAR NORTH. RECOMMENDATIONS FOR IMPROVEMENT ARE MADE.

SUBJECT: VOICE COMMUNICATIONS

KEYWORDS: CTS; SATELLITE; TECHNOLOGY; CANADA; TRANSPORTABLE; COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 787

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DATE OF DOCUMENT/TYPE: NOVEMBER 1 / PROGRESS REPORT  
 TITLE OF DOCUMENT: PROJECT INTERCHANGE: PHASE 1 AND 2  
 AUTHOR: GREEN, D.  
 SATELLITE: GTC  
 OBJECT OF EXPERIMENT: TO DEVELOP A MODEL FOR A LIVE INTERCHANGE BETWEEN WIDELY SEPARATED CLASSROOM TEACHERS  
 ABSTRACT: PROJECT INTERCHANGE SET OUT TO HOLD INTERACTIVE TELECONFERENCES BETWEEN TEACHERS IN THE ARCHDIocese OF SAN FRANCISCO AND TORRENCE UNIFIED SCHOOL DISTRICT. THE DEMONSTRATION IS DESCRIBED AND CONCLUSIONS ARE PRESENTED. A DISCUSSION OF FUTURE DIRECTIONS IS INCLUDED.  
 SUBJECT: EDUCATIONAL APPLICATIONS  
 KEYWORDS: GTS: SATELLITE: COMMUNICATIONS: INTERCHANGE: TEACHERS: CLASSROOM

UNIVERSITY OF DAYTON ACCESS NUMBER: 702

DATE OF DOCUMENT/TYPE: OCTOBER 1976 / PROPOSAL  
 TITLE OF DOCUMENT: PROGRAM PACKAGES: FY 1977  
 AUTHOR: WILSON, P. P.  
 SATELLITE: STS-A  
 ABSTRACT: PROGRAM PACKAGES ARE PLANS FOR ADDRESSING UNMET HEALTH NEEDS. THEIR PURPOSE IS TO JUSTIFY FUNDING TO SUPPORT ACTIVITIES IN SPECIFIC PROBLEM AREAS. THE LIST OF PROGRAMS ARE RANKED IN ORDER OF PRIORITY AS SET BY THE NATIVE HEALTH BOARDS.  
 SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
 KEYWORDS: STS-A: PCA: SATELLITE: HEALTH: ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 709

DATE OF DOCUMENT/TYPE: AUGUST 1977 / JOURNAL ARTICLE

TITLE OF DOCUMENT: TELEMEDICINE AT MEMORIAL UNIVERSITY OF NEWFOUNDLAND

AUTHOR: ROBERTS, J. M.; HOUSE, A. M.; MCNAMARA, M. C.

SATELLITE: CTS

OBJECT OF EXPERIMENT: THE DELIVERY OF MEDICAL AND COMMUNITY HEALTH EDUCATION AND CONSULTATION AND TRANSMISSION OF MEDICAL DATA

ABSTRACT: THIS ARTICLE DESCRIBES THE ANTICIPATED MEDICAL PROGRAM TO BE DELIVERED BY SATELLITE TO FOUR NEWFOUNDLAND LOCATIONS. AT THIS TIME NO SATELLITE TRANSMISSION HAS TAKEN PLACE. PROGRAMS TO BE BROADCAST ARE (1) CONTINUING MEDICAL EDUCATION (2) NURSING EDUCATION (3) COMMUNITY HEALTH EDUCATION (4) CONSULTATION AND TRANSMISSION OF MEDICAL DATA.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: CTS; TELEMEDICINE; HEALTH; TELEVISION; INTERACTIVE; CONSULTATION; NEWFOUNDLAND; CANADA

JOURNAL TITLE: MEDINFO

UNIVERSITY OF DAYTON ACCESS NUMBER: 710

DATE OF DOCUMENT/TYPE: AUGUST 1977 / JOURNAL ARTICLE

TITLE OF DOCUMENT: TELEMEDICINE IN CANADA

AUTHOR: HOUSE, A. M.; ROBERTS, J. M.

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO DELIVER MEDICAL AND HEALTH EDUCATION AND TRANSMIT MEDICAL DATA

ABSTRACT: OVER 12 WEEKS IN MARCH, APRIL, MAY AND JUNE 1977, MEMORIAL UNIVERSITY OF NEWFOUNDLAND EXPERIMENTED WITH THE COMMUNICATIONS SATELLITE, HERMES, A JOINT PROJECT OF CANADA'S DEPARTMENT OF COMMUNICATIONS (CRTC) AND THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA). USING THE SPECIALLY DESIGNED TERMINALS PROVIDED BY DOC, MEMORIAL WAS ABLE TO BROADCAST A TELEVISION PROGRAM FROM ST. JOHN'S TO HOSPITALS IN STEPHENVILLE, ST. ANTHONY, LABRADOR CITY AND GOOSE BAY. PROGRAMS INVOLVED COVER A WIDE RANGE OF TOPICS IN CONTINUING MEDICAL EDUCATION AND CONSULTATION SERVICES, INCLUDING TRANSMISSION OF MEDICAL DATA. CONSULTATION ACTIVITIES WERE LIMITED BECAUSE, ALTHOUGH ST. JOHN'S CAN BROADCAST AUDIO AND VIDEO SIGNALS, THE OTHER FOUR COMMUNITIES CAN BROADCAST ONLY AN AUDIO SIGNAL BACK TO ST. JOHN'S. THE PROJECT IS BEING INDEPENDENTLY EVALUATED BY MEMORIAL'S INSTITUTE FOR RESEARCH IN HUMAN ABILITIES, WHICH HAS A SEPARATE CONTRACT AND FUNDING FROM DOC.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: CTS; TELEMEDICINE; HEALTH; TELEVISION; INTERACTIVE; CONSULTATION; NEWFOUNDLAND; CANADA

JOURNAL TITLE: CMA JOURNAL, VOLUME 117

UNIVERSITY OF DAYTON ACCESS NUMBER: 711

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DATE OF DOCUMENT/TYPE: AUGUST 1969 / PAPER  
TITLE OF DOCUMENT: HEALTH STATUS OF THE ALASKA NATIVE PEOPLE  
AUTHOR: WILSON, P. R.

ABSTRACT: THE HEALTH STATUS OF THE ALASKA NATIVE PEOPLE IS DISCUSSED RELATING THIS STATUS TO THEIR HISTORY AND TO THE ADVERSE FACTORS OF THE ENVIRONMENT IN WHICH THEY LIVE. THE SYSTEM OF HEALTH DELIVERY THROUGH INDIAN HEALTH SERVICE FACILITIES IS DESCRIBED BRIEFLY AND SOME OF THE POINTS OF LINKAGE OF THAT SYSTEM WITH THOSE OF OTHER PROGRAMS ARE MENTIONED. SOME OF THE IMPORTANT ADVERSE ENVIRONMENTAL FACTORS ARE LISTED WITH THEIR MAJOR ENSUING DISEASE COMPLEXES BEING BRIEFLY DESCRIBED. THE EXTENT OF THESE DISEASES AND THEIR TRENDS ARE ILLUSTRATED BY GRAPHS COMPARING INCIDENCE AND DEATH RATES WITH OTHER POPULATION GROUPS. SEVERAL SUGGESTIONS ARE MADE FOR CORRECTION OF ADVERSE ENVIRONMENTAL FACTORS AND FOR STRENGTHENING HEALTH PROGRAMS.

SUBJECT: MEDICAL/HEALTH APPLICATIONS BACKGROUND  
KEYWORDS: ALASKA; NATIVE; HEALTH; ENVIRONMENT; DISEASE

UNIVERSITY OF DAYTON ACCESS NUMBER: 712

DATE OF DOCUMENT/TYPE: JULY 1972 / PROGRESS REPORT  
TITLE OF DOCUMENT: CONTEMPORARY HEALTH OF ALASKA NATIVES  
AUTHOR: WILSON, P. R.

ABSTRACT: THE HEALTH STATUS OF THE ALASKA NATIVE PEOPLE IS DISCUSSED RELATING THIS STATUS TO THEIR HISTORY AND TO THE ADVERSE FACTORS OF THE ENVIRONMENT IN WHICH THEY LIVE. THE SYSTEM OF HEALTH DELIVERY THROUGH INDIAN HEALTH SERVICE FACILITIES IS DESCRIBED BRIEFLY AND SOME OF THE POINTS OF LINKAGE OF THAT SYSTEM WITH THOSE OF OTHER PROGRAMS ARE MENTIONED. SOME OF THE IMPORTANT ADVERSE ENVIRONMENTAL FACTORS ARE LISTED WITH THEIR MAJOR ENSUING DISEASE COMPLEXES BEING BRIEFLY DESCRIBED.

SUBJECT: MEDICAL/HEALTH APPLICATIONS BACKGROUND  
KEYWORDS: ALASKA; NATIVE; HEALTH; ENVIRONMENT; DISEASE

UNIVERSITY OF DAYTON ACCESS NUMBER: 713

DATE OF DOCUMENT/TYPE: 1977 / EXPERIMENT PLAN  
 TITLE OF DOCUMENT: WAMI EXPERIMENT PLAN  
 AUTHOR: SCHWARTZ, P. M.  
 SATELLITE: ATS-6  
 OBJECT OF EXPERIMENT: TO PROVIDE PART OF THE EDUCATION OF FIRST YEAR MEDICAL STUDENTS VIA TWO-WAY INTERACTIVE SATELLITE COMMUNICATION  
 ABSTRACT: INCLUDED IN THIS PAPER ARE PLANNED ACTIVITIES FOR FIVE WAMI EXPERIMENTS TO BE PERFORMED DURING 1977-79. THE EXPERIMENTS ARE (1) REGIONAL FACULTY SHARING (2) INDEPENDENT LEARNING PROGRAM (3) ADMISSIONS AND MINORITY RECRUITMENT (4) CONSULTATION AS AN EDUCATIONAL PROCESS (5) SATELLITE COMMUNICATION IN THE LEGISLATIVE PROCESS.  
 SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
 KEYWORDS: CTS: SATELLITE: MEDICINE: EDUCATION: FACULTY: WAMI: ATS-6: ALASKA

UNIVERSITY OF DAYTON ACCESS NUMBER: 714

DATE OF DOCUMENT/TYPE: 1975 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: DEVELOPING AND IMPLEMENTING A CONTENT STRUCTURE FOR EDUCATIONAL TELEVISION PROGRAMMING IN THE AREA OF CAREER EDUCATION. SATELLITE TECHNOLOGY DEMONSTRATION, TECHNICAL REPORT NO. 0506.  
 AUTHOR: LONEDALE, M. C.; MCWILLIAMS JR., A. E.  
 SATELLITE: ATS-6  
 OBJECT OF EXPERIMENT: TO DEVELOP THE PROGRAMMING FOR A TELEVISION SERIES ON CAREER PLANNING FOR JUNIOR HIGH SCHOOL STUDENTS  
 ABSTRACT: THE PROGRAM COMPONENT OF THE SATELLITE TECHNOLOGY DEMONSTRATION (STD) DEVELOPED THE PROGRAMMING FOR A TELEVISION SERIES ON CAREER PLANNING FOR JUNIOR HIGH SCHOOL STUDENTS. A PROGRAM CALLED "TIM E OUT" WAS DESIGNED, DEVELOPED, AND IMPLEMENTED TO BE BROADCAST THROUGHOUT THE ROCKY MOUNTAIN STATE. A STAFF OF EDUCATORS AND COMMUNICATORS DEVELOPED A CAREER EDUCATION STRUCTURE THAT INCORPORATED ALL RELEVANT FIELD DATA ON USER NEEDS. THE COURSEWARE-TEAM APPROACH WAS USED IN WHICH EDUCATORS, SCRIPTWRITERS, AND TELEVISION DIRECTORS WORK TOGETHER TO CREATE THE BEST POSSIBLE END PRODUCT. OBJECTIVES STRESSED DECISION-MAKING, SELF-ASSESSMENT, AND CAREER EXPLORATION. APPENDIXES CONTAIN THE 103 OBJECTIVES DEVELOPED FOR THE ORIGINAL PROGRAMMING STRUCTURE, THE REVISED PROGRAMMING STRUCTURE, AND THE "J-SERIES" BROADCAST SCHEDULE.  
 SUBJECT: EDUCATIONAL APPLICATIONS  
 KEYWORDS: CAREER EDUCATION: ATS-6: EDUCATIONAL TELEVISION: CURRICULUM DEVELOPMENT: RURAL EDUCATION: TELECOMMUNICATION: SATELLITE TECHNOLOGY DEMONSTRATION (STD)

UNIVERSITY OF DAYTON ACCESS NUMBER: 715

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DATE OF DOCUMENT/TYPE: AUGUST 1975 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: REVIEW OF D ANALYSIS PROCEDURES FOR THE ATS-6 MILLIMETER WAVE EXPERIMENT  
 AUTHOR: MENECHINI, R.  
 SATELLITE: ATS-6  
 OBJECT OF EXPERIMENT: PREDICATE SATELLITE DOWNLINK ATTENUATION THROUGH THE USE OF GROUND BASED MEASUREMENTS  
 ABSTRACT: PREDICTIONS OF DOWNLINK SATELLITE ATTENUATION THROUGH THE USE OF GROUND BASED MEASUREMENTS FORM A SUBSTANTIAL PART OF THE ATS-6 MILLIMETER WAVE EXPERIMENT. AT THE DOWNLINK FREQUENCIES (20 AND 30 GHZ), THE MAJOR CAUSES OF ATTENUATION ARE THE DENSITY AND THE SIZE DISTRIBUTION OF RAIN DROPS ALONG THE PROPAGATION PATH. GROUND STATION DATA, WHICH INCLUDE RADAR AND RAIN GAUGE RECORDS, MEASURE QUANTITY RELATED TO THE METEOROLOGICAL PARAMETERS OF INTEREST AND THEREBY PROVIDE A PREDICTION OF DOWNLINK ATTENUATION WITH WHICH THE MEASURED ATTENUATION CAN BE COMPARED. THE CALIBRATION AND DATA ANALYSIS PROCEDURES USED IN THE WAVE ARE REVIEWED WITH THE OBJECT OF IMPROVING THE ACCURACY OF SUCH GROUND BASED PREDICTIONS.  
 SUBJECT: MILLIMETER WAVE  
 KEYWORDS: ATS-6: ATTENUATION: MILLIMETER WAVE: METEOROLOGICAL PARAMETER

UNIVERSITY OF DAYTON ACCESS NUMBER: 716

DATE OF DOCUMENT/TYPE: NOVEMBER 1969 / TECHNICAL REPORT  
 TITLE OF DOCUMENT: EXPERIMENTAL L-BAND SST SATELLITE COMMUNICATIONS/SURVEILLANCE TERMINAL STUDY  
 AUTHOR: KISHKADCP, W.; CARMAN, D.  
 SPONSORING AGENCY: NASA, ELECTRONIC RESEARCH CENTER  
 SATELLITE: ATS  
 ABSTRACT: THE L-BAND ANTENNA SYSTEM CONSIDERED FOR THE SST FOR SATELLITE COMMUNICATIONS MUST SATISFY GAIN REQUIREMENTS IMPOSED BY POWER-LIMITED VOICE LINKS BETWEEN THE SATELLITE AND AIRCRAFT AND ALSO MEET THE FLUSH-MOUNTED CONSTRAINT IMPOSED BY THE AERODYNAMICS OF THE SST. THE RESULTS ARE PRESENTED OF AN ANALYTIC AND EXPERIMENTAL EVALUATION CARRIED OUT AS PART OF NASA/ERC CONTRACT NAS 12-621 TO CE VFLCP ANTENNA REQUIREMENTS FOR THE SST AIRCRAFT TERMINAL.  
 SUBJECT: VOICE COMMUNICATIONS  
 KEYWORDS: ANTENNAS: ATS: SUPERSONIC TRANSPORTS: ULTRAHIGH FREQUENCY

UNIVERSITY OF DAYTON ACCESS NUMBER: 717

DATE OF DOCUMENT/TYPE: DECEMBER 1968 / TECHNICAL REPORT

TITLE OF DOCUMENT: COMMUNICATIONS AND TRACKING RELAY EXPERIMENT

AUTHOR: MOSHEF, B.

SPONSORING AGENCY: NASA, MSC HOUSTON, TEXAS

SATELLITE: ATS

OBJECT OF EXPERIMENT: TO PROVIDE AN OPERATIONAL DUPLEX COMMUNICATION AND TRACKING DATA RELAY BETWEEN AN ORBITING APOLLO APPLICATIONS SPACECRAFT AND ESTABLISHED GROUND STATIONS VIA A GEOSTATIONARY SATELLITE REPEATER.

ABSTRACT: THIS FINAL REPORT DETAILS THE SYSTEM DESIGN AND ANALYSIS, LABORATORY TESTING, AND THE RECOMMENDED BASIC CAT RELAY SYSTEM DESIGN WHICH WAS PERFORMED BY MOTOROLA DURING THE CAT RELAY EXPERIMENT STUDY PROGRAM. THE REPORT BEGINS WITH A SUMMARY OF THE EXPERIMENT FUNDAMENTALS (SECTION 2) WHICH WERE ASSUMED, CALCULATED AND NASA DEFINED. BASED UPON THESE FUNDAMENTALS, THE SYSTEM DESIGN ANALYSIS AND LABORATORY SIMULATION TEST RESULTS ARE PRESENTED. THE BASIC CAT RELAY SYSTEM RECOMMENDATIONS (SECTION 6) ARE THEN DETERMINED AND DETAILED FROM THE ANALYSIS, TEST RESULTS AND EQUIPMENT TRADEOFF STUDIES. THE AVAILABLE ALTERNATIVES TO THE BASIC SYSTEM DESIGN ARE DEFINED, THE METRIC TRACKING ACCURACY ANALYSIS PRESENTED AND THE LABORATORY DEMONSTRATIONS SUMMARIZED TO COMPLETE THE REPORT AND THE IDENTIFICATION OF THE TASKS PERFORMED ON THIS STUDY CONTRACT.

SUBJECT: VOICE COMMUNICATIONS TELEVISION TRANSMISSION

KEYWORDS: ATS; TELEVISION TRANSMISSION; TRACKING NETWORKS; TELEMETRY

UNIVERSITY OF DAYTON ACCESS NUMBER: 718

DATE OF DOCUMENT/TYPE: JUNE 1977 / JOURNAL ARTICLE

TITLE OF DOCUMENT: INTELSAT 5 - TRANSITION TO THE SHUTTLE

AUTHOR: RESECK, K. G.; DMYRE, D. G.

ABSTRACT: THIS EXPERIENCE OF DEVELOPING THIS SPACECRAFT FOR LAUNCH FROM EITHER ATLAS-CENTAUR OR THE SHUTTLE WILL HELP GUIDE THE FIELD IN THE TRANSITION PERIOD JUST AHEAD.

SUBJECT: SPACE SHUTTLE TELECOMMUNICATIONS

KEYWORDS: SPACE SHUTTLE; TELECOMMUNICATIONS; SPACE TRANSPORTATION SYSTEM

JOURNAL TITLE: ASTRONAUTICS AND AERONAUTICS, PAGES 38-46

UNIVERSITY OF DAYTON ACCESS NUMBER: 719

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DATE OF DOCUMENT/TYPE: NOVEMBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: IMPLICATION THE ALASKA EDUCATION SATELLITE COMMUNICATIONS DEMONSTRATION FOR TELECOMMUNICATIONS AND EDUCATIONAL POLICYMAKERS - VOLUME 2: SUPPORTING MATERIALS

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, NW, WASHINGTON, D. C. 20036

SATELLITE: ATS-6

ABSTRACT: THIS VOLUME CONTAINS RAW DATA AND DESCRIPTIVE MATERIALS. IT FORMS THE BASIS FOR VOLUME 1, ANALYSIS OF THE DEMONSTRATION. THE FOLLOWING INFORMATION IS CONTAINED IN THIS VOLUME: (1) DESCRIPTION OF THE OVERALL STUDY PLAN, (2) COMPENDIUM OF USER REACTION TO ESCO/ALASKA, (3) CHRONOLOGY OF ESCO/ALASKA CRITICAL EVENTS AND THEIR DOCUMENTARY BASIS.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; RURAL ALASKA; TELECOMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 720

DATE OF DOCUMENT/TYPE: AUGUST 1976 / TECHNICAL REPORT

TITLE OF DOCUMENT: A REVIEW OF ORGANIZATIONS INFLUENCING RADIO FREQUENCY ALLOCATIONS TO DEEP SPACE RESEARCH

AUTHOR: UNKNOWN

SPONSORING AGENCY: JET PROPULSION LABORATORY, 4800 OAK GROVE DRIVE, PASADENA, CALIFORNIA 91103

ABSTRACT: THOSE ORGANIZATIONS IDENTIFIED AS HAVING THE ABILITY TO INFLUENCE FREQUENCY ALLOCATIONS ARE DESCRIBED IN THIS REPORT. A BRIEF DESCRIPTION OF EACH ORGANIZATION IS PROVIDED, AND THE MEMBERS WHO ARE INFLUENTIAL SPECIFICALLY IN FREQUENCY ALLOCATIONS ARE LISTED. THE INTERRELATIONS BETWEEN THE ORGANIZATIONS AND HOW THEY INFLUENCE ALLOCATIONS ARE EXPLAINED.

THERE ARE THREE MAJOR WAYS IN WHICH AN ORGANIZATION MAY AFFECT RADIO FREQUENCY ALLOCATIONS. THEY ARE: (A) AS A REGULATORY BODY; (B) AS AN ADVISOR TO REGULATORY BODIES, OR (C) AS A USER OF FREQUENCIES.

THIS REPORT HAS BEEN ASSEMBLED UNDER THESE THREE CATEGORIES, AND THE EXISTING AND FUNCTIONING ORGANIZATIONS WHICH INFLUENCE RADIO FREQUENCY ALLOCATIONS ARE DESCRIBED ACCORDINGLY.

SUBJECT: FREQUENCY ALLOCATIONS

KEYWORDS: RADIO FREQUENCIES; FREQUENCY ALLOCATIONS; OFFICE OF TELECOMMUNICATIONS; INTERDEPARTMENT RADIO ADVISORY COMMITTEE

UNIVERSITY OF DAYTON ACCESS NUMBER: 721

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DATE OF DOCUMENT/TYPE:

/ TECHNICAL REPORT

TITLE OF DOCUMENT:

THE APPALACHIAN EDUCATION SATELLITE PROJECT - EXECUTIVE REPORT

AUTHOR:

MORSE, H. E.

SPONSORING AGENCY:

NATIONAL INSTITUTE OF EDUCATION, WASHINGTON, D.C.

SATELLITE: ATS-E

SUBJECT OF EXPERIMENT:

TO DEMONSTRATE THE USE OF EDUCATIONAL TECHNOLOGY AS A MEANS OF STRENGTHENING EXISTING LOCAL EDUCATIONAL PROGRAMS IN APPALACHIA

ABSTRACT:

THE BROAD OBJECTIVE OF THE AESP WAS TO DEMONSTRATE THE USE OF EDUCATIONAL TECHNOLOGY AS A MEANS OF STRENGTHENING EXISTING LOCAL EDUCATION PROGRAMS IN APPALACHIA. FOCUSING ON IN-SERVICE EDUCATION FOR THE IMPROVEMENT OF CLASSROOM TEACHING SKILLS, TEACHERS AT 15 REMOTE SITES IN APPALACHIA RECEIVED GRADUATE CREDIT FOR THE SUCCESSFUL COMPLETION OF COURSES BROADCAST VIA A SATELLITE COMMUNICATION NETWORK. IN UTILIZING THIS NETWORK, TEACHERS WERE ALSO GIVEN THE OPPORTUNITY TO DEVELOP INSTRUCTIONAL UNITS FROM MATERIAL AVAILABLE FROM WIDELY DIVERSE SOURCES, AS WELL AS, TO PARTICIPATE IN COMPUTER-BASED PROGRAMS.

IN SUMMARY, THE EXPERIMENT GENERATED INFORMATION FOR THE DESIGN OF FUTURE LARGE-SCALE RESOURCE SHARING ARRANGEMENTS THAT CUT ACROSS LOCAL AND STATE BOUNDARIES AND WHICH UTILIZE SOPHISTICATED COMMUNICATION MEDIA FOR THE DELIVERY OF VARIOUS EDUCATIONAL SERVICES IN REMOTE LOCATIONS.

SUBJECT:

EDUCATIONAL APPLICATIONS

KEYWORDS:

ATS-61 CAREER EDUCATION; EDUCATIONAL TELEVISION; TELECOMMUNICATIONS; APPALACHIAN EDUCATION SATELLITE PROJECT (AESP)

UNIVERSITY OF DAYTON ACCESS NUMBER: 722

E-422

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DATE OF DOCUMENT/TYPE: MARCH 1974 / TECHNICAL REPORT

TITLE OF DOCUMENT: APPALACHIAN EDUCATION SATELLITE PROJECT (AESP) - OVERVIEW

AUTHOR: TRAMBLE, M. J.; AUSNESS, C.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, WASHINGTON, D.C.

SATELLITE: ATS

OBJECT OF EXPERIMENT: TO IMPROVE THE EFFECTIVENESS OF THE CLASSROOM TEACHERS, THEREBY UPGRADE THE QUALITY OF READING AND CAREER-EDUCATION INSTRUCTION AVAILABLE TO APPALACHIA STUDENTS

ABSTRACT: THE APPALACHIAN EDUCATION SATELLITE PROJECT WAS CONCEPTUALIZED IN 1973 (1) TO DEVELOP COURSES IN READING AND CAREER-EDUCATION INSTRUCTION FOR TEACHERS IN THE APPALACHIAN REGION, AND (2) TO DETERMINE THE FEASIBILITY OF CONDUCTING SUCH COURSES OVER A LARGE GEOGRAPHICAL AREA VIA COMMUNICATION SATELLITES. THE COURSES CONSIST OF PRETAPED VIDEO INSTRUCTIONAL UNITS, LIVE VIDEO SEMINARS, FOUR-CHANNEL AUDIO INSTRUCTION, AND ANCILLARY LABORATORY MATERIALS. EACH COURSE IS EXPECTED TO UPGRADE THE SKILLS OF PARTICIPATING TEACHERS AND CONSEQUENTLY TO IMPROVE THE QUALITY OF INSTRUCTION THE STUDENTS IN THE REGION RECEIVE. HOWEVER, A BROADER GOAL OF THE PROJECT IS TO ANSWER QUESTIONS OF AN EXPERIMENTAL NATURE REGARDING THE USE OF ADVANCE TECHNOLOGICAL SYSTEMS FOR LARGE-SCALE DISSEMINATION OF KNOWLEDGE. THE PROJECT INCLUDES THE DEVELOPMENT OF COURSEWARE TAILORED TO THE NEEDS OF A GEOGRAPHICALLY DIFFUSE POPULATION, AND THE DEVELOPMENT OF AN ORGANIZATIONAL FRAMEWORK FOR CONDUCTING GRADUATE-LEVEL COURSES WITHOUT ON-SITE TEACHERS. FOR EACH COURSE, THE AESP IS PREPARING A SERIES OF PROGRAMS. THE VIDEO AND THE FOUR-CHANNEL AUDIO PORTIONS OF THE INSTRUCTION ARE TO BE TRANSMITTED TO 15 SITES IN THE APPALACHIAN REGION VIA COMMUNICATION SATELLITES IN THE APPLIED TECHNOLOGY SATELLITE (ATS) SERIES.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: APPALACHIA; AESP; CAREER EDUCATION; ATS; EDUCATIONAL TELEVISION

UNIVERSITY OF DAYTON ACCESS NUMBER: 723

**DATE OF DOCUMENT/TYPE:** FEBRUARY 1975 / TECHNICAL REPORT

**TITLE OF DOCUMENT:** BENEFITS AND PROBLEMS OF SEVEN EXPLORATORY TELEMEDICINE PROJECTS

**AUTHOR:** O'NEILL, J. J.; NOCERINO, J. T.; WALCOFF, P.

**SPONSORING AGENCY:** OHEN, HRA, NATIONAL CENTER FOR HEALTH SERVICES RESEARCH, SCIENTIFIC AND TECHNICAL INFORMATION, 5600 FISHERS LANE (ROOM 15-30 PARKLAWN BUILDING), ROCKVILLE, MARYLAND 20852

**OBJECT OF EXPERIMENT:** TO PRESENT THE LEGAL, TECHNICAL, FINANCIAL, AND OPERATIONS OF EACH PROJECT IN REGARD TO PROBLEMS AND BENEFITS

**ABSTRACT:** THIS REPORT PROVIDES INSIGHT INTO THE BENEFITS AND PROBLEMS OF UTILIZING VISUAL COMMUNICATIONS IN THE PROVISION OF HEALTH CARE AS DERIVED FROM THE EXPERIENCES OF SEVEN TELEMEDICINE PROJECTS SPONSORED BY THE NATIONAL CENTER FOR HEALTH SERVICES RESEARCH FROM 1972 - 1974. EACH OF THE PROJECTS COVERED BY THE REPORT HAS A SPECIFIC CHAPTER. EACH PROJECT CHAPTER HAS AN IDENTICAL FORMAT WHICH INCLUDES A SUMMARY OF EACH PROJECT, A TECHNOLOGICAL DESCRIPTION, A DISCUSSION OF THE TRAINING AND ORIENTATION PROGRAMS, AND A DELINEATION OF OPERATING AND ORGANIZATIONAL PROCEDURES. THE BENEFITS AND PROBLEMS OF EACH PROJECT ARE PRESENTED UNDER THE CATEGORIES OF LEGAL, TECHNICAL, FINANCIAL, AND OPERATIONS.

**SUBJECT:** MEDICAL/HEALTH APPLICATIONS

**KEYWORDS:** HEALTH SERVICES RESEARCH; HEALTH CARE DELIVERY; TELEMEDICINE

UNIVERSITY OF DAYTON ACCESS NUMBER: 726

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DATE OF DOCUMENT/TYPE: OCTOBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: SATELLITE TECHNOLOGY DEMONSTRATION - FINAL REPORT

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE FEASIBILITY OF A SATELLITE BASED MEDIA DISTRIBUTION SYSTEM FOR ISOLATED, RURAL POPULATIONS AND TO TEST AND EVALUATE USER ACCEPTANCE AND THE COST OF VARIOUS DELIVERY MODES USING A VARIETY OF MATERIALS

ABSTRACT:

THE FEDERATION OF ROCKY MOUNTAIN STATES AND THE SATELLITE TECHNOLOGY DEMONSTRATION PROJECT (STO) HAVE COLLABORATED IN AN EFFORT TO PROVIDE LOW COST INFORMATION DELIVERY TO RURAL AREAS OF THE ROCKIES. THOUGH THE GOALS AND THE FINANCIAL SUPPORT OF THIS JOINT EFFORT WERE INITIALLY CONFUSED, SITES HAVE NOW BEEN SELECTED, THE COMMUNICATIONS TECHNOLOGY HAS BEEN REFINED, AND SERVICES HAVE BEEN STABILIZED. NEW SATELLITE TECHNOLOGY HAS MADE QUALITY RECEPTION POSSIBLE WITH LOW-COST GROUND RECEIVERS, AND THE TECHNICAL PERFORMANCE OF THE SYSTEM IN ITS INITIAL YEARS HAS BEEN GOOD. "TIME OUT" -- A CAREER EDUCATION PROGRAM FOR JUNIOR HIGH SCHOOL STUDENTS -- AND "FOOTPRINT" -- A SERIES OF COMMUNITY-ORIENTED PROGRAMS -- HAVE ENJOYED HIGH AUDIENCE RESPONSE, AND SUBSTANTIAL GAINS IN STUDENT KNOWLEDGE HAVE BEEN RECORDED. PROGRAMS ARE ENHANCED BY SUPPLEMENTARY PUBLICATIONS AND AUDIOVISUAL AIDS, AND THE SYSTEM PROVIDES AN INTERACTIVE MODE WHEREBY STUDENTS CAN ASK QUESTIONS AND MAKE COMMENTS ABOUT THE PROGRAMS. A BRIEF REVIEW OF THE PROGRAM'S FINANCIAL SUPPORT IS INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; RURAL EDUCATION; TELECOMMUNICATION; CAREER EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 725

DATE OF DOCUMENT/TYPE: NOVEMBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: IMPLICATIONS OF THE ALASKA EDUCATION SATELLITE COMMUNICATIONS DEMONSTRATION FOR TELECOMMUNICATIONS AND EDUCATION POLICYMAKERS - EXECUTIVE SUMMARY

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W.  
.. WASHINGTON, D.C. 20208

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO EVALUATE THE PROGRESS OF THE EDUCATION SATELLITE COMMUNICATIONS DEMONSTRATION (ESCD)

ABSTRACT: THIS REPORT SUMMARIZES THE EVALUATION OF THE EXPERIMENTAL SATELLITE COMMUNICATIONS DEMONSTRATION (ESCD) IN ALASKA. IT CONTAINS THE IMPACT OF ESCD IN ALASKAN AFFAIRS AND INSTITUTIONS, EDUCATIONAL ALTERNATIVES AND NEW EXPERIMENTS, LOCAL CONTROL, SUCH AS IMPLEMENTATION AND IMPLICATIONS AND QUESTIONS AND ANSWERS TO KEY AUDIENCES.

UNIVERSITY OF DAYTON ACCESS NUMBER: 726

DATE OF DOCUMENT/TYPE: NOVEMBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: IMPLICATIONS OF THE ALASKA EDUCATION SATELLITE COMMUNICATIONS DEMONSTRATION FOR TELECOMMUNICATIONS AND EDUCATION POLICYMAKERS - VOLUME 1 - ANALYSIS OF THE DEMONSTRATION

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W.  
.. WASHINGTON, D.C. 20208

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO EVALUATE THE PROGRESS OF THE EDUCATION SATELLITE COMMUNICATIONS DEMONSTRATION (ESCD)

ABSTRACT: THIS REPORT ANALYZES THE ALASKAN EDUCATION SATELLITE COMMUNICATIONS DEMONSTRATION (ESCD). IT CONTAINS A BRIEF DESCRIPTION OF ESCD/ALASKA, DESCRIPTION OF THE DEMONSTRATION ENVIRONMENT IN ALASKA, USER PERCEPTION OF ESCD/ALASKA AND IMPLICATIONS FOR THE FUTURE AND SOCIAL CHANGE IN RURAL ALASKA.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; RURAL ALASKA; TELECOMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 727

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DATE OF DOCUMENT/TYPER: 20MAY-04JUNE1977 / PAPER

TITLE OF DOCUMENT: THE IMPACT OF THE COMMUNICATIONS TECHNOLOGY SATELLITE ON A GOVERNMENT ORGANIZATION

AUTHOR: RYAN, P. G. / AM, G.

SPONSORING AGENCY: PRESENTED TO: INTERNATIONAL COMMUNICATION ASSOCIATION, WEST BERLIN, GERMANY

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO EXAMINE INTERACTIVE SATELLITE MEDIATED TRAINING AND MANAGEMENT SPONSORED BY THE CANADIAN FEDERAL GOVERNMENT

ABSTRACT: THIS REPORT LOOKS AT THE FEASIBILITY OF EDUCATIONAL DELIVERY AND DISTANCE MANAGEMENT BY TELECOMMUNICATIONS. ALTHOUGH CONCRETE KNOWLEDGE OF THE ORGANIZATIONAL IMPACT OF COMMUNICATION SATELLITES IS LIMITED, THE PROJECTS CONDUCTED BY THE PUBLIC SERVICE COMMISSION PROVIDE SOME INDICATIONS. AMONG THE FIRST IS THE INCREASED EFFICIENCY OF GOVERNMENT SERVICES DELIVERY TO REMOTELY LOCATED ORGANIZATIONAL EMPLOYEES AND CLIENTS. THE SECOND IMPACT, THE INCREASED AWARENESS OF THE POTENTIAL AND UTILIZATION OF REMOTE TELECOMMUNICATIONS SYSTEMS. THE THIRD, IS THE INCREASED KNOWLEDGE OF HUMAN COMMUNICATION BEHAVIOR APPROPRIATE FOR THESE COMMUNICATIONS MEDIA. A NEED EXISTS FOR EXTENSIVE FOLLOW-UP WORK USING BOTH TEMPORAL AND SPATIAL COMMUNICATION CHANNELS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: CTS: TELECOMMUNICATIONS: PUBLIC SERVICE COMMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 726

DATE OF DOCUMENT/TYPER: 11 JULY 1976 / PAPER

TITLE OF DOCUMENT: INTERACTION - A CANADIAN THEME IN EDUCATION BY SATELLITE

AUTHOR: RYAN, P. G.; MENDENHALL, R. N.

SPONSORING AGENCY: PRESENTED TO: WORLD EDUCATION CONFERENCE, HONOLULU, HAWAII

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO ALLOW LEARNERS IN REMOTE LOCATIONS TO SHARE THE LEARNING EXPERIENCE IN AN ACTIVE MANNER

ABSTRACT: THE RESULTS OF THESE STUDIES WILL TELL EDUCATIONAL DECISION MAKERS WHETHER THEY SHOULD DEMAND INTERACTIVE POTENTIAL IN TOMORROW'S EDUCATIONAL DELIVERY SYSTEMS. MOREOVER, THE RESULTS WILL PROBABLY TELL DECISION MAKERS WHAT STATE OF THE ART TECHNOLOGY MIGHT BE BEST USED IN TOMORROW'S DELIVERY SYSTEM. FINALLY THE EXPERIMENTS WILL PRODUCE A WEALTH OF DATA ON HUMAN BEHAVIOR OVER THESE INTERACTIVE SYSTEMS WHICH SHOULD KEEP SOCIAL SCIENTISTS BUSY FOR THE NEXT FEW YEARS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: CTS: TELE-EDUCATION: PUBLIC SERVICE COMMISSION: TELECOMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 729

DATE OF DOCUMENT/TYPE: FEBRUARY 1977 / JOURNAL ARTICLE  
 TITLE OF DOCUMENT: A SIMULATION OF STAFF TRAINING BY SATELLITE  
 AUTHOR: JAFKEK, C.; MCCOY, T.  
 SATELLITE: CTS  
 OBJECT OF EXPERIMENT: TO OBSERVE A PILOT STUDY INTO AN INNOVATIVE USE OF TELECONFERENCING AS A TRAINING TECHNIQUE  
 ABSTRACT: THE ARTICLE DISCUSSES OBSERVATIONS MADE OF A PILOT STUDY TO TRAIN BY TELECONFERENCING, VIA OF SATELLITE, TO PERSONNEL IN REMOTE LOCATIONS.  
 SUBJECT: EDUCATIONAL APPLICATIONS  
 KEYWORDS: CTS; TRAINING; TELECOMMUNICATIONS; PUBLIC SERVICE COMMISSION  
 JOURNAL TITLE: CANADIAN TRAINING METHODS

UNIVERSITY OF DAYTON ACCESS NUMBER: 730

DATE OF DOCUMENT/TYPE: JUNE 1976 / PAPER  
 TITLE OF DOCUMENT: SATELLITE AND STAFF TRAINING  
 AUTHOR: FFFNETTE, C.  
 SPONSORING AGENCY: PRESENTED TO: AMTEC, ST. JOHN'S, NEWFOUNDLAND  
 SATELLITE: CTS

OBJECT OF EXPERIMENT: TO EXAMINE TRAINING POSSIBILITIES SATELLITES CAN OFFER

ABSTRACT: THE FIRST PART OF THIS PAPER IS AIMED AT EXAMINING WHAT TRAINING POSSIBILITIES SATELLITES CAN OFFER. CONSIDERATION WILL BE GIVEN TO THOSE ASPECTS OF A LIFE-LONG LEARNING SYSTEM THAT TELECOMMUNICATIONS CAN SERVE IN THE FUTURE.  
 BY A LIFE-LONG LEARNING SYSTEM, IN AN ORGANIZATIONAL CONTEXT, WE MEAN AN INTEGRATED ENSEMBLE OF TRAINING ACTIVITIES RELATED TO THE ORGANIZATION'S MANPOWER POLICY.  
 OUR FIELD OF STUDY IS THE FEDERAL PUBLIC SERVICE AS AN ORGANIZATION RESPONSIBLE FOR TRAINING ITS PERSONNEL.

SUBJECT: EDUCATIONAL APPLICATIONS  
 KEYWORDS: CTS; TRAINING; TELECOMMUNICATIONS; PUBLIC SERVICE COMMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 731

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DATE OF DOCUMENT/TYPE: 29 DECEMBER 1975 / PAPER

TITLE OF DOCUMENT: CANADIAN SATELLITE EXPERIMENTS - IMPLICATIONS FOR HUMAN COMMUNICATION

AUTHOR: RYAN, W. G.; MENDENHALL, W.

SPONSORING AGENCY: PRESENTED TO: SPEECH COMMUNICATION ASSOCIATION, HOUSTON, TEXAS

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO EXAMINE TELE-EDUCATION EXPERIMENTS

ABSTRACT: THIS PAPER WILL BRIEFLY DESCRIBE THE TELE-EDUCATION EXPERIMENTS AND ELABORATE IN PARTICULAR ON THE EXPERIMENT PLANNED BY THE PUBLIC SERVICE COMMISSION. THE TELE-EDUCATION EXPERIMENTS HAVE A FOCUS ON INTERACTIVE HUMAN COMMUNICATION, ESPECIALLY THE PUBLIC SERVICE COMMISSION EXPERIMENT.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: CTS; TELECOMMUNICATIONS; PUBLIC SERVICE COMMISSION; TELE-EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 732

DATE OF DOCUMENT/TYPE: 5-9 SEPTEMBER 1977 / PAPER

TITLE OF DOCUMENT: EVALUATIONS OF INTERACTIVE TELE-EDUCATION IN THE PUBLIC SERVICE COMMISSION

AUTHOR: MENDENHALL, W.; LORTIE, R.

SPONSORING AGENCY: PRESENTED TO: NATO SYMPOSIUM, BERGAMO, ITALY

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO SUMMARIZE COMMUNICATION NEEDS REQUIREMENTS IN THE PUBLIC SERVICE COMMISSION

ABSTRACT: THIS PAPER SUMMARIZES THE COMMUNICATION NEEDS REQUIREMENTS IN THE PUBLIC SERVICE COMMISSION. IT PRESENTS RESULTS OF LABORATORY AND FIELD STUDIES UNDERTAKEN TO INVESTIGATE THE APPLICATION OF TELECONFERENCING TO EDUCATIONAL AND ADMINISTRATIVE FUNCTIONS. IT DESCRIBES THE LEARNING MODEL DEVELOPED FOR THE ADULT LEARNER IN AN INTERACTIVE EDUCATIONAL SITUATION, I.E. THE PRINCIPLES UNDERLYING THE MODEL, THE ROLE OF THE RESOURCE PERSON, AND LEARNER, AND SOME INFORMATION EXCHANGE STRATEGIES. RESULTS OBTAINED FROM THE SIMULATION OF THE MODEL ARE ALSO PRESENTED AS WELL AS ITS FUTURE APPLICATION IN A SATELLITE-MEDIATED LEARNING SITUATION.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: CTS; TELE-EDUCATION; TELECOMMUNICATIONS; PUBLIC SERVICE COMMISSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 733

DATE OF DOCUMENT/TITLE: AUGUST 1977 / TECHNICAL REPORT

TITLE OF DOCUMENT: AIR TRAFFIC CONTROL EXPERIMENTATION AND EVALUATION WITH THE NASA ATS-6 SATELLITE - VOLUME 1: EXECUTIVE SUMMARY

AUTHOR: PFOTOPAPA, S.

SPONSORING AGENCY: U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, SYSTEM RESEARCH AND DEVELOPMENT SERVICE, WASHINGTON, D.C. 20591

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TESTS WERE DESIGNED TO COLLECT SATELLITE-AIRCRAFT SIGNAL PROPAGATION DATA, EVALUATE L-BAND AVIONICS HARDWARE DESIGNS, AND PERFORM PRELIMINARY SATELLITE VOICE AND DATA COMMUNICATIONS DEMONSTRATION TESTS

ABSTRACT:

THE U.S. DEPARTMENT OF TRANSPORTATION (DOT), FEDERAL AVIATION ADMINISTRATION (FAA) PROGRAM FOR AIR TRAFFIC CONTROL (ATC) EXPERIMENTATION AND EVALUATION WITH THE ATS-6 SATELLITE WAS PART OF THE INTEGRATED ATS-6 L-BAND EXPERIMENT. ALL TESTS WERE PERFORMED BETWEEN SEPTEMBER 1974 AND APRIL 1975. THE U.S. DOT AERONAUTICAL PROGRAM CONSISTED OF BOTH ATC COMMUNICATIONS DEMONSTRATION AND TECHNOLOGY TESTS. IN SUPPORT OF THE AERONAUTICAL SATELLITE (AEROSAT) PROGRAM, TESTS WERE DESIGNED TO COLLECT SATELLITE-AIRCRAFT SIGNAL PROPAGATION DATA, EVALUATE L-BAND AVIONICS HARDWARE DESIGNS, AND PERFORM PRELIMINARY SATELLITE VOICE AND DATA COMMUNICATIONS DEMONSTRATION TESTS.

THE TECHNOLOGY TESTS WERE COMPOSED OF MULTIPATH CHANNEL CHARACTERIZATION TESTS: MODEM TESTS OF VOICE, DATA AND RANGING; AND AIRCRAFT ANTENNA TESTS. MULTIPATH RESULTS INCLUDE OVERLAND DATA, COMPARISONS OF MULTIPATH SAMPLE RESULTS WITH MODEL PREDICTION ARE GIVEN. VOICE MODEM INTELLIGIBILITY SCORES, DIGITAL DATA BIT-ERROR RATES AND RANGING MODEM PERFORMANCE ARE PRESENTED PARAMETRICALLY AS FUNCTIONS OF C/N SUB 0 AND S/I. EXPERIMENTALLY DERIVED GAIN AND MULTIPATH REJECTION PERFORMANCE DATA ARE GIVEN FOR THE SLOT-DIPOLE, PHASED-ARRAY AND PATCH ANTENNAS FOR VARIOUS AIRCRAFT/SATELLITE GEOMETRIES.

THE DEMONSTRATION TESTS OF SATELLITE SUPPORTED COMMUNICATIONS FOR APPLICATION TO OCEANIC ATC COMPRISED TWO PHASES: DEMONSTRATIONS RELATING TO U.S. CONCEPTS AND PRACTICES, AND DEMONSTRATIONS CONDUCTED AS A JOINT EFFORT BETWEEN THE U.S., THE EUROPEAN SPACE AGENCY (ESA) AND CANADA.

THE REPORT CONSISTS OF SEVEN VOLUMES: 1 - EXECUTIVE SUMMARY; 2 - DEMONSTRATION OF SATELLITE-SUPPORTED COMMUNICATIONS AND SURVEILLANCE FOR OCEANIC AIR TRAFFIC CONTROL; 3 - SUMMARY OF U.S. AERONAUTICAL TECHNOLOGY TEST PROGRAM; 4 - DATA REDUCTION AND ANALYSIS SOFTWARE; 5 - MULTIPATH CHANNEL CHARACTERIZATION TESTS; 6 - MODEM EVALUATION TESTS; 7 - AIRCRAFT ANTENNA EVALUATION TEST.

SUBJECT:

AIR TRAFFIC CONTROL

KEYWORDS:

AEROSAT; MULTIPATH; ATS-6; DELAY-DOPPLER SCATTER FUNCTION; MODEM EVALUATION; L-BAND; VOICE INTELLIGIBILITY; BIT-ERROR RATES; RANGING; ANTENNAS; PHASED ARRAY

UNIVERSITY OF DAYTON ACFFS NUMBER: 734

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DATE OF DOCUMENT/TYPE: JUNE 1977 / NEWSPAPER ARTICLE

TITLE OF DOCUMENT: FACTS: LUTHER LEAGUE NEWSPAPER

AUTHOR: OFTH, B.

ABSTRACT: THE ARTICLE DESCRIBES SEVERAL SATELLITE ENCOUNTERS BETWEEN GROUPS WITHIN THE LUTHERAN CHURCH. SOME DISCUSSION IS GIVEN TO THE COST OF A SATELLITE TERMINAL.

SUBJECT: VOICE COMMUNICATIONS

KEYWORDS: SATELLITE: COMMUNICATIONS: RADIO: LUTHERAN

UNIVERSITY OF DAYTON ACCESS NUMBER: 735

DATE OF DOCUMENT/TYPE: SEPTEMBER 1977 / NEWSPAPER ARTICLE

TITLE OF DOCUMENT: NASA ACTIVITIES

AUTHOR: UNKNOWN

SATELLITE: CTS

ABSTRACT: THIS ARTICLE RELATES THE USE OF CTS FOR COMMUNICATIONS DURING THE JULY 1977 FLOOD OF JOHNSTOWN, PENNSYLVANIA. A DESCRIPTION OF THE EMERGENCY SYSTEM IS GIVEN.

SUBJECT: VOICE COMMUNICATIONS

KEYWORDS: SATELLITE: CTS: JOHNSTOWN: FLOOD: COMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 736

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DATE OF DOCUMENT/TYPE: NOVEMBER 1976 / TECHNICAL REPORT  
TITLE OF DOCUMENT: LOWERING BARRIERS TO TELECOMMUNICATIONS GROWTH  
AUTHOR: CROSBIE, D. D.

ABSTRACT: THIS REPORT CONTAINS THE FINDINGS AND RECOMMENDATIONS OF THE SCIENCE AND TECHNOLOGY TELECOMMUNICATIONS TASK FORCE OF THE U.S. DEPARTMENT OF COMMERCE. THE TASK FORCE WAS FORMED TO EXPLORE HOW BARRIERS TO THE APPLICATION OF TELECOMMUNICATION TECHNOLOGY MIGHT BE LOWERED SO THAT NEW DOMESTIC PRODUCTS AND SERVICES WOULD BECOME MORE WIDELY AND MORE RAPIDLY AVAILABLE.  
TASK FORCE MEMBERS VISITED 39 COMPANIES, WHICH WERE SELECTED TO PROVIDE A BLEND OF A NUMBER OF VARIED ELEMENTS: LARGE AND SMALL COMPANIES; EQUIPMENT MANUFACTURERS AND SERVICE PROVIDERS; AND EXPORTERS AND COMPANIES SERVING THE DOMESTIC MARKET. TAKEN AS A WHOLE, THE INTERVIEWS AND VISITS COVERED THE MAJOR ELEMENTS OF THE U.S. TELECOMMUNICATION INDUSTRY.

SUBJECT: VOICE COMMUNICATIONS

KEYWORDS: SATELLITE; COMMUNICATION; TELECOMMUNICATION; DEVELOPMENT; INDUSTRY; GOVERNMENT

UNIVERSITY OF DAYTON ACCESS NUMBER: 737

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DATE OF DOCUMENT/TYPE: JANUARY 1977 / NEWSPAPER ARTICLE  
TITLE OF DOCUMENT: LEWIS NEWS  
AUTHOR: UNKNOWN

SATELLITE: CTS

ABSTRACT: THIS ARTICLE DESCRIBES THE OPERATION OF THE CTS SATELLITE ONE YEAR AFTER LAUNCH. COMMENTS REGARDING SATELLITE PERFORMANCE INDICATE IT IS FUNCTIONING AS PLANNED.

SUBJECT: DATA TRANSMISSION EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
VOICE COMMUNICATIONS

KEYWORDS: CTS; COMMUNICATIONS; SATELLITE; CANADA; EARTH TERMINAL; LEWIS SPACE CENTER

JOURNAL TITLE: SPACE SYSTEMS AND TECHNOLOGY

UNIVERSITY OF DAYTON ACCESS NUMBER: 738



DATE OF DOCUMENT/TYPE: MARCH 1977 / TECHNICAL REPORT  
TITLE OF DOCUMENT: TESTING A 60 B/S FFSK MODEM ON HERMES SATELLITE  
AUTHOR: TAYLOR, D. P.; MORVAI, G.; HAYKIN, S. S.  
SATELLITE: ATS

ABSTRACT: RESULTS OF TESTING A 60 MB/S FAST-FREQUENCY SHIFT-KEYING (FFSK) MODEM USING THE HERMES SATELLITE SYSTEM ARE PRESENTED. THESE TESTS WERE CONDUCTED DURING THE PERIOD 22 JUNE, 1976 TO 1 JULY, 1976 USING THE 9 METRE AND 3 METRE TERMINALS OF THE HERMES SYSTEM, AND REPRESENT PHASE 4 OF A CONTINUING STUDY OF DIGITAL MODEMS FOR HIGH RATE DATA TRANSMISSION ON SATELLITE SYSTEMS. THE FIELD TESTING REPORTED HEREIN CONSISTS PRIMARILY OF CURVES OF BIT ERROR-RATE AS A FUNCTION OF BIT ENERGY TO NOISE SPECTRAL DENSITY RATIO UNDER VARIOUS CHANNEL CONDITIONS. ALSO INCLUDED ARE MEASUREMENTS OF TRANSMITTED AND RECEIVED SPECTRA AND MEASUREMENTS OF PHASE-LOCKED LOOP ACQUISITION TIME.

SUBJECT: DATA TRANSMISSION  
KEYWORDS: ATS; DIGITAL MODEMS; COMMUNICATIONS; CANADA; COMMUNICATIONS RESEARCH LABORATORY

UNIVERSITY OF DAYTON ACCESS NUMBER: 739

DATE OF DOCUMENT/TYPE: JULY 1975 / PAPER  
TITLE OF DOCUMENT: ADVANCED BIOMEDICAL APPLICATIONS TO SATELLITE COMMUNICATIONS  
AUTHOR: SHANASKIP, R. B.; CALDWELL, D. E.

SATELLITE: ATS-6  
OBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF SATELLITE COMMUNICATIONS TO EXCHANGE BIOMEDICAL INFORMATION

ABSTRACT: THE VETERANS ADMINISTRATION'S (VA) HEALTH CARE SYSTEM IS THE LARGEST IN THE UNITED STATES. IN ORDER TO PROVIDE THE BEST POSSIBLE CARE TO EVERY PATIENT THAT COMES TO A VA FACILITY, REGARDLESS OF ITS LOCATION, THE VA MUST CONSTANTLY LOOK TO THE LATEST SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENTS TO DETERMINE WHAT IMPACT EACH MAY HAVE ON THE DELIVERY OF QUALITY MEDICAL CARE. THE VA MADE A SIGNIFICANT COMMITMENT TO THE CONDUCT OF BIOMEDICAL EXPERIMENTS ON ATS-6. FURTHERMORE, THE NEEDS OF THE VA'S NATIONWIDE HEALTH DELIVERY SYSTEM CALL FOR ADDITIONAL EXPERIMENTS AND OPERATIONAL UTILIZATION OF SATELLITE TRANSMITTED COMMUNICATIONS.

SUBJECT: MEDICAL/HEALTH APPLICATIONS  
KEYWORDS: SATELLITE; ATS-6; VETERANS ADMINISTRATION; BIOMEDICAL; COMMUNICATIONS; TELECONSULTATION; VIDEO; HOSPITAL

UNIVERSITY OF DAYTON ACCESS NUMBER: 740

DATE OF DOCUMENT/TYPE: JULY 1974 / JOURNAL ARTICLE  
 TITLE OF DOCUMENT: SATELLITE EXCHANGES OF MEDICAL INFORMATION  
 AUTHOR: SHAMASKIN, R. B.; CALDWELL, K. S.  
 SATELLITE: ATS-6  
 OBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF SATELLITE COMMUNICATIONS TO EXCHANGE BIOMEDICAL INFORMATION  
 ABSTRACT: THIS ARTICLE BRIEFLY SUMMARIZES WORK DONE DURING THE VA EXPERIMENT. INCLUDED IS A LIST OF TOPICS PRESENTED VIA SATELLITE.  
 SUBJECT: MEDICAL/HEALTH APPLICATIONS  
 KEYWORDS: ATS-6; SATELLITE; VETERANS ADMINISTRATION; BIOMEDICAL; TELECONSULTATION; COMMUNICATIONS  
 JOURNAL TITLE: BIOMEDICAL COMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 741

DATE OF DOCUMENT/TYPE: 1975 / JOURNAL ARTICLE  
 TITLE OF DOCUMENT: THE APPLICATION OF SATELLITES TO INTERNATIONAL INTERACTIVE SERVICE SUPPORT COMMUNICATION  
 AUTHOR: GYSTROM, J. W.  
 SATELLITE: ATS-1  
 ABSTRACT: PEACESAT IS A DEMONSTRATION PROJECT INITIATED IN 1971. ITS OBJECTIVE IS TO STUDY THE BENEFITS ARISING FROM DIRECT CONFERENCE COMMUNICATIONS BETWEEN GROUPS WITH COMMON INTERESTS IN WIDELY SEPARATED COUNTRIES OF THE PACIFIC. COOPERATING INSTITUTIONS ARE LINKED BY LOW COST SELF-CONTAINED RADIO TERMINALS AND A COMMUNICATION SATELLITE RELAY. EACH STATION IS ABLE TO COMMUNICATE SIMPLY AND EASILY WITH ALL OTHERS AND SEND AND RECEIVE VOICE AND FACSIMILE SIGNALS. TELETYPE AND SLOW SCAN TELEVISION EXPERIMENTS ARE ALSO PLANNED.  
 SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
 KEYWORDS: ATS-1; SATELLITE; COMMUNICATION; PEACESAT; HAWAII; TELECOMMUNICATION; EDUCATION; VOICE

UNIVERSITY OF DAYTON ACCESS NUMBER: 742

E-434

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DATE OF DOCUMENT/TYPE: 1976

/ JOURNAL ARTICLE

TITLE OF DOCUMENT: A FOLLOW-UP REPORT ON THE APPALACHIAN EDUCATION SATELLITE PROJECT

AUTHOR: BRAPBLE, W. J.; HENSLEY, C. E.; GOLDSTEIN, D.

SATELLITE: ATS-6

ABSTRACT:

IN MAY 1974, NASA LAUNCHED THE ATS-6 SATELLITE. AMONG THE JOBS PLANNED FOR ATS-6 WAS THE LARGE-SCALE DELIVERY OF EDUCATIONAL AND HEALTH SERVICES, A CONCEPT PREVIOUSLY UNTRIED WITH COMMUNICATIONS SATELLITES. SPONSORED BY THE NATIONAL INSTITUTE OF EDUCATION, EDUCATION PROJECTS WERE DEVELOPED FOR ALASKA, APPALACHIA AND THE ROCKY MOUNTAIN REGION. THIS PAPER DESCRIBES THE ACTIVITIES AND OUTCOMES OF THE APPALACHIAN EDUCATION SATELLITE PROJECT (AESPI).

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; SATELLITE; COMMUNICATION; APPALACHIA; AESPI; TELECOMMUNICATION

JOURNAL TITLE: EDUCATIONAL TECHNOLOGY SYSTEMS, VOLUME 5, ISSUE 2

UNIVERSITY OF DAYTON ACCESS NUMBER: 743

DATE OF DOCUMENT/TYPE: 21-23 JULY 1975 / PAPER

TITLE OF DOCUMENT: COLLEGE CURRICULUM - SHARING VIA CTS

AUTHOR: HUDSON, H. E.; GUILD, P. D.; COLL, D. C.; LUMB, D. R.

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO DEVELOP, DEMONSTRATE, AND EVALUATE COLLEGE COURSE SHARING TECHNIQUES VIA SATELLITE USING VIDEO COMPRESSION

ABSTRACT:

DOMESTIC COMMUNICATION SATELLITES AND VIDEO COMPRESSION TECHNIQUES WILL INCREASE COMMUNICATION CHANNEL CAPACITY AND REDUCE COST OF VIDEO TRANSMISSION. NASA AMES RESEARCH CENTER, STANFORD UNIVERSITY AND CARLETON UNIVERSITY ARE PARTICIPANTS IN AN EXPERIMENT TO DEVELOP, DEMONSTRATE, AND EVALUATE COLLEGE COURSE SHARING TECHNIQUES VIA SATELLITE USING VIDEO COMPRESSION. THE UNIVERSITIES WILL EXCHANGE TELEVIEWED SEMINAR AND LECTURE COURSES VIA CTS. THE EXPERIMENT FEATURES REAL-TIME VIDEO COMPRESSION WITH CHANNEL CODING AND QUADRATURE PHASE MODULATION FOR REDUCING TRANSMISSION BANDWIDTH AND POWER REQUIREMENTS. EVALUATION PLANS AND PRELIMINARY RESULTS OF CARLETON SURVEYS ON STUDENT ATTITUDES TO TELEVIEWED TEACHING ARE PRESENTED. POLICY IMPLICATIONS FOR THE U.S. AND CANADA ARE OUTLINED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: CTS; VIDEO TRANSMISSION; EDUCATION; TELECONFERENCING; VIDEO COMPRESSION

UNIVERSITY OF DAYTON ACCESS NUMBER: 744

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E-436

DATE OF DOCUMENT/TYPE: SEPTEMBER 1976 / JOURNAL ARTICLE

TITLE OF DOCUMENT: PEACESAT EXPERIMENT - GENERAL DESCRIPTION 1971-1976

AUTHOR: RYSTRON, J.

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO LINK TWELVE NATIONS BY COMMUNICATION SATELLITE FOR MEDICAL/HEALTH AND EDUCATION

ABSTRACT:

THE PAN PACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE (PEACESAT) IS AN INTERNATIONAL EDUCATIONAL EXPERIMENT INVOLVING INSTITUTIONS IN TWELVE NATIONS OF THE PACIFIC BASIN. ALL ARE LINKED BY COMMUNICATION SATELLITE AND ENGAGED IN DAILY INFORMATION SHARING. STARTED IN 1969 AT THE UNIVERSITY OF HAWAII, THE FIRST TRANSMISSION WAS IN APRIL 1971. INTERNATIONAL NETWORKING BEGAN WITH WELLINGTON, NEW ZEALAND IN DECEMBER 1971. A DAILY COMMUNICATION SCHEDULE HAS AVERAGED 16 HOURS PER WEEK FROM 1971-1976.

THE PEACESAT PROJECT HAS PRODUCED (1) THE FIRST AND ONLY INTERNATIONAL EDUCATIONAL SATELLITE NETWORK, (2) THE FIRST INTRASTATE SATELLITE NETWORK IN THE U.S., (3) THE FIRST COURSE FOR CREDIT BY SATELLITE IN THE WORLD, (4) THE FIRST SATELLITE LIBRARY NETWORK.

COMMUNICATIONS ARE USED FOR EPIDEMIC CONTROL, MEDICAL NETWORKING, HIGHER EDUCATION COURSES, ELEMENTARY AND SECONDARY INSTRUCTION, AGRICULTURAL IMPROVEMENT, ECONOMIC DEVELOPMENT, DISASTER CONTROL, PROFESSIONAL DEVELOPMENT, SUBPROFESSIONAL TRAINING.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-1; TELECOMMUNICATIONS; INTERNATIONAL PROGRAMS; MEDICAL EDUCATION; PEACESAT

JOURNAL TITLE: EDUCATIONAL BROADCASTING INTERNATIONAL, VOLUME 9, ISSUE 3, PAGES 183-187

UNIVERSITY OF DAYTON ACCESS NUMBER: 745

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DATE OF DOCUMENT/TYPE: JUNE 1976 / JOURNAL ARTICLE

TITLE OF DOCUMENT: EVALUATING STUDENT PERFORMANCE IN A DECENTRALIZED BASIC SCIENCE PROGRAM

AUTHOR: CULLEN, T. J.; LOMNER, C. W.; STRIKER, G. E.; SCHWARTZ, M. P.

OBJECT OF EXPERIMENT: TO EVALUATE A BASIC SCIENCE COURSE STUDENTS AT DIFFERENT UNIVERSITIES

ABSTRACT: EVALUATION OF THE BASIC SCIENCE CURRICULUM IN THE REGIONALIZED PROGRAM OF THE UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE (UMSH), WHERE FIRST-SEMESTER COURSES ARE TAUGHT AT UNIVERSITIES IN WASHINGTON, ALASKA, MONTANA, AND IDAHO (WAMI), REVEALED THAT STUDENTS AT PARTICIPATING SITES ACHIEVED AS WELL AS THOSE AT UMMS.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: HIGHER EDUCATION; MEDICAL EDUCATION; MEDICAL STUDENTS; WAMI

JOURNAL TITLE: JOURNAL OF MEDICAL EDUCATION, VOLUME 51, ISSUE 6, PAGES 473-477

UNIVERSITY OF DAYTON ACCESS NUMBER: 746

DATE OF DOCUMENT/TYPE: 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: AN HISTORICAL OVERVIEW OF THE PRODUCTION REQUIREMENT FOR THE SATELLITE TECHNOLOGY DEMONSTRATION. TECHNICAL REPORT NO. 504.

AUTHOR: SMITH, M. P.; SUSEY, P.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W., WASHINGTON, D.C. 20208

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO EMPLOY THE LATEST TELECOMMUNICATIONS TECHNOLOGY TO DELIVER COMMUNITY ORIENTED PROGRAMMING TO RURAL AREAS

ABSTRACT: THE SATELLITE TECHNOLOGY DEMONSTRATION EMPLOYS THE LATEST TELECOMMUNICATIONS TECHNOLOGY TO DELIVER COMMUNITY ORIENTED PROGRAMMING TO RURAL AREAS. TO MEET THE DEMAND FOR CONTEMPORARY BROADCASTS RESPONSIVE TO COMMUNITY NEEDS, A STUDIO WAS CONSTRUCTED IN THE DEWEY AREA TO PRODUCE AND COORDINATE FUTURE PROGRAMS FOR THE ROCKY MOUNTAIN AREA. PROBLEMS WERE ENCOUNTERED IN THE SITE SELECTION, DESIGN, EQUIPMENT PROCUREMENT, INSTALLATION, PERSONNEL SELECTION, AND INADEQUATE LEAD TIME. THIS REPORT REVIEWS DETAILS OF THE PROJECT'S BEGINNINGS AND MAKES RECOMMENDATIONS FOR THE FUTURE.

SUBJECT: BROADCASTING

KEYWORDS: ATS-6; TELECOMMUNICATIONS; VIDEO EQUIPMENT; ROCKY MOUNTAIN AREA; SATELLITE TECHNOLOGY DEMONSTRATION (STD)

UNIVERSITY OF DAYTON ACCESS NUMBER: 747

E-438

DATE OF DOCUMENT/TYPE: OCTOBER 1976 / TECHNICAL MEMORANDUM  
TITLE OF DOCUMENT: CTS UNITED STATES EXPERIMENTS - A PROGRESS REPORT  
AUTHOR: DONOUGHE, P. L.; ROBBINS, W. W.  
SPONSORING AGENCY: 27TH INTERNATIONAL ASTRONAUTICAL CONGRESS SPONSORED BY INTERNATIONAL ASTRONAUTICAL FEDERATION, ANAH  
EIM, CALIFORNIA.  
SATELLITE: CTS  
OBJECT OF EXPERIMENT: THIS PAPER PRESENTS THE RESULTS OF EXPERIMENTS TO DATE  
ABSTRACT: THE COMMUNICATIONS TECHNOLOGY SATELLITE (CTS) IS A HIGH POWER BROADCAST SATELLITE LAUNCHED BY  
NASA ON JANUARY 17, 1976. CTS IS THE FIRST SATELLITE TO OPERATE AT A FREQUENCY OF 12 GIGAHERTZ AND  
INCORPORATES NEW TECHNOLOGY MAKING POSSIBLE NEW SATELLITE TELECOMMUNICATIONS SERVICES. CTS IS A C  
OOPERATIVE PROGRAM OF THE UNITED STATES AND CANADA. THIS PAPER PRESENTS THE RESULTS OF THE UNITED  
STATES EXPERIMENTS ACTIVITY TO DATE. WIDE SEGMENTS OF THE POPULATION ARE INVOLVED IN THE EXPERIMEN  
TS PROGRAM INCLUDING THE SCIENTIFIC COMMUNITY, OTHER GOVERNMENT AGENCIES, INDUSTRY, AND THE EDUCATI  
ON AND HEALTH ENTITIES. THE EXPERIMENTS ARE ASSOCIATED WITH BOTH TECHNOLOGICAL OBJECTIVES AND THE  
DEMONSTRATION OF NEW COMMUNITY AND SOCIAL SERVICES VIA SATELLITE.  
SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS  
KEYWORDS: CTS; SOCIAL SERVICES; TELECOMMUNICATIONS

UNIVERSITY OF DAYTON ACCESS NUMBER: 748

DATE OF DOCUMENT/TYPE: OCTOBER 1977 / TECHNICAL REPORT  
TITLE OF DOCUMENT: SATELLITE COMMUNICATION PROJECT  
AUTHOR: BENSTEAD, G.  
SATELLITE: ATS-1  
OBJECT OF EXPERIMENT: TO TEACH COURSES BY A SMALL SCHOOL TO ELEVEN TINY COUNTRIES BY SATELLITE  
ABSTRACT: THE MAJOR EMPHASIS OF THE UNIVERSITY'S EXPERIMENTATION WITH ATS-1 HAS BEEN CONCERNED WITH OPTIMI  
SING THE RESOURCES OF A SMALL SCHOOL WITHIN A WIDELY SCATTERED ISLAND ENVIRONMENT. ELEVEN TINY COU  
NTRIES CONTRIBUTE TO THE UNIVERSITY, AND THE COMMUNICATION EXPERIMENTS MADE AVAILABLE BY THE NASA F  
ACILITY HAVE ALLOWED THE UNIVERSITY THE OPPORTUNITY TO DEVELOP A UNIQUE SYSTEM OF EDUCATIONAL DELIV  
ERY AND ADMINISTRATION.  
SUBJECT: EDUCATIONAL APPLICATIONS  
KEYWORDS: ATS-1; TELECOMMUNICATIONS; U. OF SOUTH PACIFIC; SATELLITE COURSES

UNIVERSITY OF DAYTON ACCESS NUMBER: 749

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DATE OF DOCUMENT/TYPE: MAY 1975 / PAPER

TITLE OF DOCUMENT: REMOTE PSYCHIATRIC AND PSYCHOLOGICAL SERVICES VIA COMMUNICATIONS TECHNOLOGY SATELLITE (CTS)

AUTHOR: CONVEY, H. D.

SPONSORING AGENCY: CANADIAN CONFERENCE ON INFORMATION SCIENCE; QUEBEC CITY, QUEBEC, CANADA

SATELLITE: CTS

OBJECT OF EXPERIMENT: TO PROVIDE REMOTE PSYCHIATRIC SERVICES TO A POPULATION IN MOOSE FACTORY, ONTARIO, VIA OF SATELLITE

ABSTRACT: TO PROVIDE REMOTE PSYCHIATRIC SERVICES TO A POPULATION IN MOOSE FACTORY, ONTARIO, VIA SATELLITE, DIGITAL DATA LINKS WILL BE USED TO PROVIDE 24-HOUR ACCESS TO THE PSYCHIATRIC MEDICAL FILE SYSTEM AND THE PSYCHIATRIC PATIENT REGISTER AT UNIVERSITY HOSPITAL, LONDON, ONTARIO, AND TO PERMIT SCORING AND INTERPRETATION OF STANDARD PSYCHOLOGICAL TESTS. THE EXPERIMENTS ALSO WILL PROVIDE EMERGENCY AND ROUTINE PSYCHIATRIC CONSULTATION, SUPERVISION OF PROCEDURES, AND BACK-UP EXPERTISE. MEDICAL AND PARA-MEDICAL STAFF WILL BE EDUCATED THROUGH A TV-AUDIO INTERACTIVE LINK. THE TV TRANSMISSION METHOD AND THE DIGITAL DATA LINK ARE EXPLAINED, AND THE OPERATIONAL PROCEDURE ARE DESCRIBED. METHODS TO BE USED FOR IMPLEMENTING THE AUTOMATED PSYCHOLOGICAL TEST BATTERY ALSO ARE DESCRIBED.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: CTS; MENTAL HEALTH PROGRAMS; TELECOMMUNICATIONS; PSYCHIATRIC SERVICES; PSYCHOLOGICAL TESTING; RURAL AREAS; EDUCATIONAL TELEVISION

UNIVERSITY OF DAYTON ACCESS NUMBER: 730

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E-440

DATE OF DOCUMENT/TYPE: AUGUST 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: USING SATELLITE TECHNOLOGY TO INCREASE PROFESSIONAL COMMUNICATIONS AMONG TEACHERS: A REPORT OF EXPERIMENTS CONDUCTED BY THE NATIONAL EDUCATION ASSOCIATION

AUTHOR: UNKNOWN

SATELLITE: ATS-1: ATS-6

OBJECT OF EXPERIMENT: TO IMPROVE PROFESSIONAL COMMUNICATION AMONG TEACHERS

ABSTRACT:

THE NATIONAL EDUCATION ASSOCIATION (NEA) IN CONJUNCTION WITH THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, THE NATIONAL LIBRARY OF MEDICINE, THE ALASKA BROADCASTING COMMISSION, AND THE PACIFIC PEACESAT NETWORK, CONDUCTED FOUR SATELLITE EXPERIMENTS DESIGNED TO IMPROVE PROFESSIONAL COMMUNICATION AMONG TEACHERS. THESE PROGRAMS WERE THE SATELLITE SEMINAR, THE NEA-ALASKA HOUR, NEASAT, AND THE PAN-PACIFIC SATELLITE PILOT SERIES. THE REPORT CONCLUDED THAT: (1) TEACHER-TO-TEACHER EXCHANGE IS THE PROGRAM'S MOST IMPORTANT ASPECT; (2) WHEN THE COURSE IS OFFERED FOR CREDIT THERE IS LESS TEACHER PARTICIPATION; (3) SUFFICIENT TIME MUST BE ALLOWED TO MAIL MATERIALS IN ADVANCE OF THE PROGRAMS; (4) A SITE COORDINATOR IS ESSENTIAL AT EVERY LOCATION, AND (5) PRIOR LOCAL COORDINATION SHOULD BE ESTABLISHED WITH ALL POTENTIAL USERS OF A SATELLITE RADIO STATION TO SELECT AN OPTIMUM SITE. THE ADVANTAGES OF USING SATELLITES AS DELIVERY SYSTEMS FOR NEA PROGRAMS WERE SUMMARIZED. THE APPENDIX CONTAINS SAMPLE PRESS RELEASES, EVALUATION FORMS, AND DISCUSSION QUESTIONS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: COMMUNICATION SATELLITES; EDUCATIONAL TELEVISION; INSERVICE TEACHER EDUCATION; RURAL EDUCATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 751

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DATE OF DOCUMENT/TYPE: OCTOBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: PEACESAT PROJECT SOCIAL APPLICATIONS: EARLY USES OF INTERNATIONAL TWO-WAY COMMUNICATIONS BY SATELLITE FOR SOCIAL DEVELOPMENT. REPORT 2.

AUTHOR: UNKNOWN

SATELLITE: ATS-1

OBJECT OF EXPERIMENT: TO DESCRIBE THE SOCIAL APPLICATIONS OF PEACESAT

ABSTRACT: THE PEACESAT PROJECT (PAN-PACIFIC EDUCATION AND COMMUNICATION EXPERIMENTS BY SATELLITE) IS AN INTERNATIONAL EDUCATION EXPERIMENT INVOLVING INSTITUTIONS IN 12 NATIONS OF THE PACIFIC BASIN. BEGUN IN 1969 AND IN FULL OPERATION SINCE 1971, THE PROJECT EXPERIMENTS WITH THE APPLICATION OF COMMUNICATIONS TECHNOLOGY AND NEW METHODS OF OPERATION ESPECIALLY DESIGNED FOR HEALTH, EDUCATION, AND COMMUNITY SERVICES. THIS REPORT DESCRIBES THE SOCIAL APPLICATIONS OF PEACESAT. SOME OF THE APPLICATIONS INCLUDE INTERCULTURAL EXCHANGE, DISSEMINATION INFORMATION FOR AGRICULTURE, TEACHING LAW BY SATELLITE, SOLVING COMMUNITY PROBLEMS, AND ANTICIPATING POTENTIAL MEDICAL AND HEALTH PROBLEMS. GUIDELINES FOR USING THE SYSTEM ARE INCLUDED ALONG WITH A CHRONOLOGY OF THE PROJECT.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: COMMUNICATION SATELLITES; INFORMATION SYSTEMS; SOCIAL SERVICES; TELECOMMUNICATION; PEACESAT

UNIVERSITY OF DAYTON ACCESS NUMBER: 752

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E-441

**DATE OF DOCUMENT/TYPE:** NOVEMBER 1973 / PAPER

**TITLE OF DOCUMENT:** COMMUNICATIONS TECHNOLOGY IN THE FUTURE OF HIGHER EDUCATION IN THE UNITED STATES

**AUTHOR:** MORGAN, F. P.

**SPONSORING AGENCY:** SYMPOSIUM ON COMMUNICATIONS MEDIA AND THE FUTURE OF HIGHER EDUCATION, STUTTGART, GERMANY

**OBJECT OF EXPERIMENT:** TO EXAMINE THE POTENTIAL ROLE OF COMMUNICATIONS MEDIA AND TECHNOLOGY IN THE FUTURE OF HIGHER EDUCATION IN THE UNITED STATES

**ABSTRACT:** AN EXAMINATION IS MADE OF THE POTENTIAL ROLE OF COMMUNICATIONS MEDIA AND TECHNOLOGY IN THE FUTURE OF HIGHER EDUCATION IN THE UNITED STATES (U.S.). THE STATUS OF U.S. HIGHER EDUCATION IS REVIEWED, IMPORTANT TRENDS ARE IDENTIFIED, AND THE RATIONALE FOR INCREASED TECHNOLOGICAL UTILIZATION IS DISCUSSED. THIS IS FOLLOWED BY A DESCRIPTION OF SELECTED EXAMPLES AND USES OF LARGE-SCALE ELECTRONIC TECHNOLOGY IN AMERICAN HIGHER EDUCATION AND BY A REVIEW OF EXPERIMENTS AND DEMONSTRATIONS INVOLVING TELEVISION AND COMPUTER AND INFORMATION NETWORKS. PARTICULAR ATTENTION IS ALSO DEVOTED TO EXPERIMENTS AND FUTURE DEVELOPMENTS INVOLVING COMMUNICATIONS SATELLITES. PROJECTS IN THE PACIFIC AREA AND IN ALASKA, AS WELL AS FORTHCOMING EXPERIMENTS IN THE ROCKY MOUNTAIN STATES AND IN APPALACHIA, ARE DESCRIBED, WITH EMPHASIS UPON DEVELOPMENTS WHICH MIGHT AID IN RESOURCE SHARING AND IN EXPANDING ACCESS TO HIGHER EDUCATION. THE PAPER CONCLUDES WITH SOME BRIEF COMMENTS CONCERNING FORECASTS OF THE FUTURE UTILIZATION OF TECHNOLOGY IN HIGHER EDUCATION AND SOME SUGGESTIONS CONCERNING THE ROLE OF COMMUNICATIONS MEDIA IN THE PROPOSED WORLD UNIVERSITY.

**SUBJECT:** EDUCATIONAL APPLICATIONS

**KEYWORDS:** COMMUNICATION SATELLITE; HIGHER EDUCATION; INSTRUCTIONAL TECHNOLOGY; TELECOMMUNICATION

UNIVERSITY OF DAYTON ACCESS NUMBER: 753

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DATE OF DOCUMENT/TYPE: 1976 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE APPALACHIAN EDUCATION SATELLITE PROJECT - FINAL REPORT

AUTHOR: UNKNOWN

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE USE OF EDUCATIONAL TECHNOLOGY AS A MEANS OF INTENSIFYING LOCAL EDUCATION PROGRAMS IN APPALACHIA

ABSTRACT: THE FIRST SECTION OF THIS REPORT DESCRIBES THE OBJECTIVES, PROJECT ORGANIZATION, AND PROGRAM OF THE APPALACHIAN EDUCATION SATELLITE PROJECT. THE SECOND SECTION DESCRIBES THE RESOURCE COORDINATING CENTERS AND THEIR SEVEN MISSIONS: READING COURSE DEVELOPMENT, CAREER EDUCATION COURSE DEVELOPMENT FOR K-6 AND 7-12, FOUR-CHANNEL AUDIO PROGRAM DEVELOPMENT, TELEVISION PRODUCTION AND BROADCASTING, INFORMATION SYSTEMS, AND EVALUATION. TWO DOCUMENTS ARE INCLUDED IN THE APPENDIX TO THE SECOND SECTION: ONE DESCRIBES THE FOUR-CHANNEL AUDIO COMPONENT OF THE PROJECT, AND THE OTHER PROVIDES SAMPLES OF INPUT AND DOCUMENTS FROM THE INFORMATION SYSTEMS PROJECT. THE THIRD SECTION DESCRIBES THE OPERATION AND FUNCTION OF THE FIVE REGIONAL EDUCATION SERVICE AGENCIES WHICH COOPERATED IN THE PROJECT. PROJECT ACCOMPLISHMENTS ARE SUMMARIZED IN THE FOURTH SECTION, AND POSSIBLE FUTURE DEVELOPMENTS CONCLUDE THE REPORT.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: APPALACHIAN EDUCATION; CAREER EDUCATION; ATS-6; EDUCATIONAL TECHNOLOGY; INSERVICE TEACHER EDUCATION; RURAL EDUCATION; TELECOMMUNICATIONS; SATELLITE PROJECT; (AESPI)

UNIVERSITY OF DAYTON ACCESS NUMBER: 754

DATE OF DOCUMENT/TYPE: AUGUST 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: STUDENT ACHIEVEMENT: DIAGNOSTIC AND PRESCRIPTIVE READING INSTRUCTION, SUMMER, 1974. TECHNICAL REPORT NO. 8

AUTHOR: BRAMBLE, W. J.; MARION, P.; AUSNESS, C.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W., WASHINGTON, D.C. 20208

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE GAINS IN PERFORMANCE ON TEST KEYED TO COURSE OBJECTIVES, AND THEIR ATTITUDES TOWARD CONCEPTS AND PRINCIPLES PRESENTED IN THE COURSE

ABSTRACT: A COURSE IN DIAGNOSTIC AND PRESCRIPTIVE READING INSTRUCTION WAS DELIVERED BY SATELLITE TO A GROUP OF EDUCATORS, AND COGNITIVE, AFFECTIVE, AND CLASSROOM PRACTICE CHANGES WERE OBSERVED. PARTICIPANTS WERE KINDERGARTEN THROUGH THIRD GRADE TEACHERS IN THE APPALACHIAN REGION. THE COURSE CONSISTED OF 12 HALF-HOUR COLOR VIDEOTAPE LESSONS, 12 PRETAPED AUDIO REVIEW SEGMENTS, LABORATORY ACTIVITIES, UNIT TESTS, RELATED READING MATERIALS, AND THREE 45-MINUTE, LIVE, TELEVISED SEMINAR PROGRAMS. PRE AND POST TESTS WERE DEVELOPED FOR EACH OF THE 12 UNITS OF THE COURSE. THE PARTICIPANTS DEMONSTRATED GAINS IN PERFORMANCE ON TESTS KEYED TO COURSE OBJECTIVES, AND THEIR ATTITUDES TOWARD CONCEPTS AND PRINCIPLES PRESENTED IN THE COURSE CHANGED SLIGHTLY IN A POSITIVE DIRECTION. STATISTICAL TABLES SHOW THE RESULTS OF PRE AND POST TESTING. A QUESTIONNAIRE, A TEACHING PRACTICE INVENTORY, AND THE COURSE OUTLINE ARE APPENDED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; APPALACHIAN EDUCATION SATELLITE PROJECT (AESP); EDUCATIONAL TELEVISION; READING INSTRUCTION; RURAL EDUCATION; TELECOMMUNICATIONS; DIAGNOSTIC AND PRESCRIPTIVE READING INSTRUCTION

UNIVERSITY OF DAYTON ACCESS NUMBER: 755

E-444

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DATE OF DOCUMENT/TYPE: OCTOBER 1974 / TECHNICAL REPORT

TITLE OF DOCUMENT: FORMATIVE EVALUATION STUDY FOR AESP DIAGNOSTIC AND PRESCRIPTIVE READING COURSE. TECHNICAL REPORT NO. 3

AUTHOR: SPANGLER, W. J.; AUSNESS, C.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W., WASHINGTON, D.C. 20208

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO EVALUATE THE DIAGNOSTIC AND PRESCRIPTIVE READING INSTRUCTION COURSE FOR K-3 TEACHERS

ABSTRACT: THE APPALACHIAN EDUCATION SATELLITE PROJECT (AESP) WAS CONCEPTUALIZED IN 1973 (1) TO DEVELOP COURSES IN READING AND CAREER-EDUCATION INSTRUCTION FOR TEACHERS IN THE APPALACHIAN REGION, AND (2) TO DETERMINE THE FEASIBILITY OF CONDUCTING SUCH COURSES OVER A LARGE GEOGRAPHICAL AREA VIA COMMUNICATIONS SATELLITES. THIS REPORT DESCRIBES THE FORMATIVE EVALUATION DESIGN USED FOR ONE COURSE, THE DIAGNOSTIC AND PRESCRIPTIVE READING INSTRUCTION COURSE FOR K-3 TEACHERS. TWELVE DIFFERENT INSTRUMENTS WERE USED TO EVALUATE THE TELEVIEWED LECTURE TAPE, AUDIO REVIEW TAPE, LABORATORY EXERCISES, AND SCRIPTS FOR THE COURSE MODULE. FORTY GRADUATE AND UNDERGRADUATE STUDENTS FROM READING CLASSES AT THE UNIVERSITY OF KENTUCKY COLLEGE OF EDUCATION PROVIDED FOR FORMATIVE EVALUATION DATA FOR THE PROJECT. EXAMPLES OF THE INSTRUMENTS TOGETHER WITH THE SPECIFIC PROCEDURES FOR THEIR USE ARE INCLUDED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; DIAGNOSTIC TEACHING; EDUCATIONAL TELEVISION; FORMATIVE EVALUATION; INSERVICE TEACHER EDUCATION; TELECOMMUNICATION; APPALACHIAN EDUCATION SATELLITE PROJECT (AESP); READING

UNIVERSITY OF DAYTON ACCESS NUMBER: 756

DATE OF DOCUMENT/TYPE: DECEMBER 1974 / TECHNICAL REPORT

TITLE OF DOCUMENT: THE EVALUATION DESIGN: SUMMER COURSES, 1974. TECHNICAL REPORT NO.4.

AUTHOR: SPANBLE, W. J.; AUSNESS, C.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1208 19TH STREET, N.W.  
.. WASHINGTON, D.C. 20209

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO EVALUATE GRADUATE EDUCATION COURSES GIVEN BY SATELLITE

ABSTRACT:

THE APPALACHIAN EDUCATION SATELLITE PROJECT (AESPI) WAS CONCEPTUALIZED IN 1973 (1) TO DEVELOP COURSES IN READING AND CAREER-EDUCATION INSTRUCTION FOR TEACHERS IN THE APPALACHIAN REGION, AND (2) TO DETERMINE THE FEASIBILITY OF CONDUCTING SUCH COURSES OVER A LARGE GEOGRAPHICAL AREA VIA COMMUNICATION SATELLITES. DURING THE SUMMER OF 1974 NEARLY 600 TEACHERS AT 15 SITES RECEIVED GRADUATE EDUCATION COURSES. THE EVALUATION OF THOSE COURSES IS DESCRIBED IN THIS DOCUMENT. INCLUDED IN THE EVALUATION STRATEGIES USED ARE: (1) PRE-POST COURSE TESTING OF THE COGNITIVE AND AFFECTIVE BEHAVIORS OF PARTICIPANTS; (2) ACHIEVEMENT TESTING AFTER EACH UNIT OF INSTRUCTION; (3) USER RATING OF THE DIFFERENT PRESENTATION MODES; (4) DESCRIPTIVE DOCUMENTATION OF EQUIPMENT, FACILITIES, PERSONNEL, AND PARTICIPANTS; AND (5) A FIELD STUDY OF THE ADDITIVE IMPACT OF THREE ACTIVITIES IN THE COURSE LEARNING SEQUENCE. THE IMPLEMENTATION AND DATA ANALYSIS PROCEDURES FOR THE EVALUATION ARE ALSO DESCRIBED.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; CAREER EDUCATION; TELECOMMUNICATION; APPALACHIAN EDUCATION SATELLITE PROJECT (AESPI); EVALUATION METHODS; RURAL EDUCATION

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DATE OF DOCUMENT/TYPE: AUGUST 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: STUDENT ACHIEVEMENT: CAREER EDUCATION IN THE ELEMENTARY SCHOOLS: SUMMER, 1974. TECHNICAL REPORT NO. 9.

AUTHOR: HARIOK, R.; BRAMBLE, W. J.; AUSNESS, C.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 16TH STREET, N.W., WASHINGTON, D.C. 20202

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO DEMONSTRATE THE FEASIBILITY OF CONDUCTING GRADUATE LEVEL COURSES FOR TEACHERS IN ISOLATED REGIONS USING COMMUNICATION SATELLITE

ABSTRACT:

THE APPALACHIAN EDUCATION SATELLITE PROJECT (AESP) WAS CREATED TO DEMONSTRATE THE FEASIBILITY OF CONDUCTING GRADUATE LEVEL COURSES FOR TEACHERS IN ISOLATED REGIONS USING COMMUNICATION SATELLITE S. ONE OF THE AESP'S FOUR PROJECTS WAS AN EIGHT SESSION CAREER EDUCATION SERIES FOR 234 ELEMENTARY SCHOOL TEACHERS GIVEN AT 15 SITES THROUGHOUT THE APPALACHIAN REGION. THE CONCLUSIONS REACHED WERE: (1) TEACHERS DEMONSTRATED A SIGNIFICANT GAIN IN THE COGNITIVE AREA; (2) TEACHERS INDICATED A SIGNIFICANT CHANGE IN ATTITUDE TOWARD CAREER EDUCATION; (3) TEACHERS FELT THE COURSE PROVIDED THEM WITH MORE USEFUL INFORMATION THAN A CAMPUS EDUCATION COURSE; AND (4) TEACHERS ARE CONTINUING TO USE THE CAREER EDUCATION TECHNIQUES THEY LEARNED IN THEIR OWN CLASSROOMS. THE APPENDICES COVER COURSE OUTLINE, LAB MATERIALS, AND VARIOUS QUESTIONNAIRES USED IN THE FORMATIVE EVALUATION PROCESS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; CAREER EDUCATION; EDUCATIONAL TELEVISION; ELEMENTARY SCHOOL TEACHERS; RURAL EDUCATION; TELECOMMUNICATION; APPALACHIAN EDUCATION SATELLITE PROJECT (AESP)

UNIVERSITY OF DAYTON ACCESS NUMBER: 750

**DATE OF DOCUMENT/TYPE:** SEPTEMBER 1975 / TECHNICAL REPORT

**TITLE OF DOCUMENT:** COST ESTIMATION MODEL FOR ALTERNATIVE FORMATS AND DELIVERY MODES. TECHNICAL REPORT NO. 18.

**AUTHOR:** BRAPBLE, W. J.; AUSNESS, C.; MERTENS, D.

**SPONSORING AGENCY:** NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W., WASHINGTON, D.C. 20028

**SATELLITE:** ATS-6

**OBJECT OF EXPERIMENT:** TO JUSTIFY THE COST OF USING THE SATELLITE METHOD, A COST MODEL WAS DEVELOPED

**ABSTRACT:** THE APPALACHIAN EDUCATION SATELLITE PROJECT (AESP) WAS DESIGNED TO APPLY COMMUNICATIONS SATELLITE TECHNOLOGY TO THE TASK OF IMPROVING THE QUALITY OF EDUCATION IN APPALACHIA. THIS REPORT IS THE 18TH IN A 12 VOLUME SERIES. TO JUSTIFY THE COST OF USING THE SATELLITE METHOD, A COST MODEL WAS DEVELOPED. THIS COST MODEL PROVIDED INFORMATION ON: (1) THE COST TO DEVELOP, PRODUCE, TRANSMIT, AND HANDLE EACH OF THE LEARNING ACTIVITIES IN THE COURSES PRODUCED BY THE AESP; (2) THE EFFECT ON COURSE COSTS OF ADDING OR DELETING LEARNING ACTIVITIES; (3) THE PER-STUDENT COST VARIANCE AS A FUNCTION OF THE VARIOUS FACTORS; AND (4) THE POINT WHERE EDUCATION BY SATELLITE IS EFFICIENT IN RELATION TO ALTERNATIVE METHODS OF INSTRUCTION. TWELVE FIGURES ILLUSTRATE THE FORMULAS FOR CALCULATING WHAT IT COSTS TO DEVELOP, PRODUCE, AND EVALUATE THE DIFFERENT AESP LEARNING ACTIVITIES. ELEVEN TABLES OF COST ESTIMATES ARE ALSO INCLUDED. DETAILED INFORMATION THAT BREAKS DOWN THE COST OF EACH ELEMENT IS APPENDED.

**SUBJECT:** EDUCATIONAL APPLICATIONS

**KEYWORDS:** ATS-6; APPALACHIAN EDUCATION SATELLITE PROJECT (AESP); EDUCATIONAL TELEVISION; TELECOMMUNICATIONS PROGRAM COSTS

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DATE OF DOCUMENT/TYPE: SEPTEMBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: SUMMATIVE EVALUATION OF CAREER EDUCATION IN THE SECONDARY SCHOOL COURSE: FALL, 1974. TECHNICAL REPORT NO. 11.

AUTHOR: MAYNARD, D.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W., WASHINGTON, D.C. 20206

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO UTILIZE A COMMUNICATION SATELLITE AS PART OF A 16 SESSION CAREER EDUCATION COURSE FOR SECONDARY SCHOOL TEACHERS

ABSTRACT: A COMMUNICATION SATELLITE WAS UTILIZED AS PART OF A 16 SESSION CAREER EDUCATION COURSE FOR SECONDARY SCHOOL TEACHERS GIVEN AT 15 SITES THROUGHOUT THE APPALACHIAN REGION. THE CONCLUSIONS REACHED WERE: (1) TEACHERS PREFERRED THE SESSIONS WHICH PRESENTED EXAMPLES OF CAREER EDUCATION AND WERE "HOW TO DO IT" IN FORMAT; (2) TEACHERS PREFERRED LAB ACTIVITIES IN WHICH STUDENT INTERACTION PREDOMINATED; (3) TEACHERS WOULD USE THE CORU (COMPUTER BASED RESOURCE UNITS) AND AIM/ARM (ABSTRACTS OF INSTRUCTIONAL MEDIA AND RESEARCH MATERIALS IN VOCATIONAL EDUCATION) INFORMATION SYSTEMS IF THEY WERE INSTALLED IN THEIR SCHOOL SYSTEMS BUT WANTED MORE CLARIFICATION OF THEIR USAGE; (4) TEACHERS DEMONSTRATED SIGNIFICANT GAINS IN THE COGNITIVE AREA; (5) TEACHERS INDICATED SIGNIFICANT CHANGE IN ATTITUDE TOWARDS CAREER EDUCATION; AND (6) TEACHERS INDICATED THEY ARE USING MORE CAREER EDUCATION ACTIVITIES IN THEIR OWN CLASSROOMS. THE APPENDIXES INCLUDE THE NAMES OF THE 35 PARTICIPANTS, THE LAB ACTIVITIES, AND VARIOUS QUESTIONNAIRES USED DURING THE FORMATIVE EVALUATION PROCESS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; CAREER EDUCATION; EDUCATIONAL TELEVISION; INSERVICE TEACHER EDUCATION; RURAL EDUCATION; SECONDARY SCHOOL TEACHERS; APPALACHIAN EDUCATION SATELLITE PROJECT (AESPI)

UNIVERSITY OF DAYTON ACCESS NUMBER: 760

DATE OF DOCUMENT/TYPE: SEPTEMBER 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: SUMMATIVE EVALUATION OF DIAGNOSTIC AND PRESCRIPTIVE READING INSTRUCTION K-6 COURSE, SPRING, 1975. TECHNICAL REPORT NO.12.

AUTHOR: BRADBLE, W. J.; MAYNARD, D. T.; MARION, R.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1280 19TH STREET, N.W., WASHINGTON, D.C. 20208

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO OFFER INDIVIDUALIZED EXPERIENCE IN DIAGNOSING SPECIFIC READING PROBLEMS AND IN LOCATING REMEDIAL MATERIALS VIA OF SATELLITE

ABSTRACT: AN INSERVICE EDUCATIONAL TELEVISION COURSE, WHICH OFFERED INDIVIDUALIZED EXPERIENCE IN DIAGNOSING SPECIFIC READING PROBLEMS AND IN LOCATING REMEDIAL MATERIALS, WAS BEAMED BY COMMUNICATION SATELLITE TO 206 ELEMENTARY SCHOOL TEACHERS IN THE APPALACHIAN REGION. COURSE EVALUATION CONCLUDED THAT: (1) PARTICIPANTS DEMONSTRATED A SIGNIFICANT GAIN IN THE COGNITIVE AREA; (2) PARTICIPANTS PREFERRED PROGRAMS WHICH BALANCED THEORY AND PRACTICE; (3) PARTICIPANTS SCORED A NONSIGNIFICANT CHANGE IN ATTITUDE; (4) SITE COORDINATORS NEEDED MORE TRAINING AS FACILITATORS; (5) A MORE EFFICIENT SYSTEM OF QUESTION RELAY AND QUESTION SCREENING SHOULD BE UTILIZED; (6) TEACHER-TO-TEACHER EXCHANGE AND FIELD WORK WERE HIGHLY PRAISED; (7) INFORMATION RETRIEVAL SYSTEMS WOULD BE UTILIZED MORE FREQUENTLY IF THE SITE COORDINATOR POSSESSED MORE TRAINING, THE VIDEO PROGRAM WAS IMPROVED, AND THE RECOMMENDED MATERIALS WERE MORE ACCESSIBLE; (8) EQUIPMENT PERFORMANCE WAS EXCELLENT; (9) PARTICIPANTS CONSIDERED THE COURSE EXPERIENCE VALUABLE. APPENDIXES CONTAIN 25 TABLES AND 4 ILLUSTRATIONS, QUESTIONNAIRES, AND AN EVALUATION FORMS. THIS WAS ONE OF FOUR APPALACHIAN EDUCATION SATELLITE PROJECTS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; EDUCATIONAL TELEVISION; ELEMENTARY SCHOOL TEACHERS; INSERVICE TEACHER EDUCATION; READING DIAGNOSIS; RURAL EDUCATION; APPALACHIAN EDUCATION SATELLITE PROJECT (AESPP)

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DATE OF DOCUMENT/TYPE: MAY 1974 / TECHNICAL REPORT

TITLE OF DOCUMENT: HISTORY AND RECOMMENDATIONS RESULTING FROM EVALUATION PLANNING FOR THE FEDERATION OF ROCKY MOUNTAIN STATES' EDUCATIONAL TECHNOLOGY DEMONSTRATION. FINAL REPORT.

AUTHOR: MARKLE, N. H.; MARKLE, D. G.; CARLBERG, C. G.; FOOTE, D. R.

SPONSORING AGENCY: DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, OFFICE OF THE SECRETARY, WASHINGTON, D.C.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: A SUMMARY OF THE FIRST 18 MONTHS OF OPERATION OF THE SATELLITE TECHNOLOGY DEMONSTRATION IS PRESENTED

ABSTRACT: A SUMMARY OF THE FIRST 18 MONTHS OF OPERATION OF THE FEDERATION OF ROCKY MOUNTAIN STATES' EDUCATIONAL TECHNOLOGY DEMONSTRATION (RENAMED SATELLITE TECHNOLOGY DEMONSTRATION AFTER MAY 1973) DETAILS THE HISTORY OF THE DEMONSTRATION AND EXPLAINS THE RATIONALE FOR THE DEMONSTRATION'S EVALUATION PLANNING AND HISTORICAL ANALYSIS. THE REPORT CONCLUDES WITH RECOMMENDATIONS FOR FUTURE SOCIAL DEMONSTRATION PROJECTS, NOTING THAT IT IS INHERENTLY DIFFICULT TO ACHIEVE A WORKABLE BALANCE AMONG POLITICAL CONSTRAINTS, OPERATIONAL CONSTRAINTS, SOCIAL CONSTRAINTS, AND AT THE SAME TIME REACH THE PROJECT'S GOALS.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: COMMUNICATION SATELLITES; DEMONSTRATION PROJECTS; EDUCATIONAL TECHNOLOGY; TELECOMMUNICATIONS; SATELLITE TECHNOLOGY DEMONSTRATION (STD)

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DATE OF DOCUMENT/TYPE: 1975 / TECHNICAL REPORT

TITLE OF DOCUMENT: PROGRAMMING AS AN INSTRUMENT FOR COMMUNITY INVOLVEMENT; DESIGNING TOPICAL TELEVISION PROGRAMS FOR RURAL ADULT AUDIENCES. SATELLITE TECHNOLOGY DEMONSTRATION, TECHNICAL REPORT NO. 503.

AUTHOR: DAPRY, K.

SPONSORING AGENCY: NATIONAL INSTITUTE OF EDUCATION, DEPARTMENT OF HEALTH, EDUCATION AND WELFARE, 1200 19TH STREET, N.W., WASHINGTON, D.C. 20200

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO TEST THE FEASIBILITY OF DELIVERING TELEVISION PROGRAMMING VIA SATELLITE TO ISOLATED, RURAL LOCATIONS

ABSTRACT: THE OVERALL OBJECTIVE OF THE SATELLITE TECHNOLOGY DEMONSTRATION (STD) WAS TO TEST THE FEASIBILITY OF DELIVERING TELEVISION PROGRAMMING VIA SATELLITE TO ISOLATED RURAL LOCATIONS. COMMUNITY MEMBERS AT VARIOUS STD SITES WERE SURVEYED TO DETERMINE HOW THEY FELT ABOUT A VARIETY OF TOPICS WHICH WERE PLANNED FOR AN ADULT EVENING SERIES. TOPICS IN EDUCATION, CONSUMER AFFAIRS, HEALTH, AND ENVIRONMENT PROVED TO BE OF INTEREST, AND A SERIES OF 12 PROGRAMS, 40 MINUTES EACH WITH A 19 MINUTE LOCAL QUESTION-AND-ANSWER SEGMENT, WAS DESIGNED AND BROADCAST TO STD RECEIVERS LOCATED IN LOCAL JUNIOR HIGH SCHOOLS. AUDIENCE REACTIONS WERE POSITIVE, BUT IT WAS CONCLUDED THAT MORE INTEREST COULD BE GENERATED IF PROGRAMS WERE OF MORE SPECIFIC LOCAL INTEREST.

SUBJECT: EDUCATIONAL APPLICATIONS

KEYWORDS: ATS-6; SATELLITE TECHNOLOGY DEMONSTRATION (STD); ADULT EDUCATION; COMMUNITY EDUCATION; EDUCATIONAL TELEVISION; RURAL EDUCATION; TELECOMMUNICATION

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DATE OF DOCUMENT/TYPE: JAN 1976 / INFORMAL NOTES

TITLE OF DOCUMENT: PROJECT LOOK UP

AUTHOR: WIEDE, J. J.

SATELLITE: ATS-6

OBJECT OF EXPERIMENT: TO PROVIDE SERVICES IN HEALTH, EDUCATION, EMPLOYMENT, AND CULTURE AND MORALS IN BOTH RURAL AND URBAN AREAS OF PUERTO RICO AND THE U.S. VIRGIN ISLANDS

ABSTRACT: THE PROJECT LOOK UP EXPERIMENT IS AN EDUCATIONAL STUDY IN THE USE OF THE ATS-6 SATELLITE TO PROVIDE SERVICES IN HEALTH, EDUCATION, EMPLOYMENT, AND CULTURE AND MORALS IN BOTH RURAL AND URBAN AREAS OF PUERTO RICO AND THE U.S. VIRGIN ISLANDS. THE EXPERIMENT WILL SEEK TO ASSESS WHETHER PEOPLE IN THE DEVELOPING AREAS OF THE WORLD CAN BE ASSISTED IN THEIR SOCIETAL GROWTH BY SATELLITE. PROJECT LOOK UP INTENDS TO EXPLORE THE CONCEPT OF PROVIDING THESE PEOPLE WITH SATELLITE TV PROGRAMS WHICH WILL HELP TO BRING THEM A HIGHER STANDARD OF LIFE. PROGRAMS ARE BEING CAREFULLY CHOSEN ACCORDING TO STRICT STANDARDS TO MEET SPIRITUAL, PHYSICAL AND INTELLECTUAL NEEDS. AND ALL PROGRAMS WILL BE PRESENTED FROM A CHRISTIAN POINT OF VIEW.

SUBJECT: EDUCATIONAL APPLICATIONS MEDICAL/HEALTH APPLICATIONS

KEYWORDS: ATS-6; RURAL AREAS; URBAN AREAS; PUERTO RICO; U.S. VIRGIN ISLANDS; GROUND RECEIVERS

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